Collaborative Testing Services, Inc.
Containerboard Interlaboratory Testing Program

Participant Summary Report #547 (D) - April 2015

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample Lot	Analysis Name
201	BOX9	Box Compression Strength, Corrugated Boxes
202	ECT8	Edgewise Compressive Strength, Wax (T811), Corrugated board
203	ECT8	Edgewise Compressive Strength by Clamp (T839), Corrugated board
205	42D1	Mullen Burst of Linerboard, 42 lb Linerboard
207	36Z3	Mullen Burst of Linerboard, 36 lb Linerboard
215	42D1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
217	36Z3	Ring Crush of Linerboard, Rigid Platen Type, 36 lb Linerboard
223	42D1	STFI of Linerboard, 42 lb Linerboard
225	36Z3	STFI of Linerboard, 36 lb Linerboard
228	69C	Roughness - Stylus Method, 69 lb Linerboard
231	36Z	Internal Bond Strength, Linerboard, 36 lb Linerboard
234	36Z	Coefficient of Static Friction - Inclined Plane, 36 lb Linerboard
237	36Z	Air Resistance - Gurley Method, Linerboard, 36 lb Linerboard
240	CM73	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM73	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM73	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM73	STFI of Medium, 26 lb Corrugating Medium

INTRODUCTION

The Interlaboratory Testing Program for Containerboard is operated and maintained by Collaborative Testing Services, Inc. (CTS), with technical guidance provided by the Containerboard Group of the American Forest & Paper Association. The tests are conducted on a monthly basis.

For these tests samples of linerboard and corrugating medium, that each have been separately randomized from narrow rolls, are distributed for testing weekly. One weight of medium (26 lb.) is used for Concora Flat Crush Strength, Corrugated Fluted Crush Strength, Ring Crush Strength, and STFI Compression. Two weights of linerboard are tested each month for Mullen Burst, Ring Crush, and STFI Compression: 42 lb. - every month; 36 lb. and 69 lb. - alternate months. The participants return their test results for analysis and receive a monthly report.

Please refer to the section, "EXPLANATION OF TABLES", for definitions of terms and guidelines to interpreting the results.

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

The samples of linerboard and corrugating medium, which have been randomized and placed in sealed packages for distribution in this program, may be used as collaborative reference materials. The values most representative of each material are the Cumulative Grand Means in the latest reports, given at the bottom right of each table. Comparisons can only be made within one lot of material; therefore check your measurements against the Cumulative Grand Means with the same lot code as on the packages being tested.

Material	Lot Code	Dates in Use
36# Linerboard	36Z1	June 2010 - December 2011
	36Z2	February 2012 - Current
42# Linerboard	42B2	June 2012 - April 2013
	42B3	May 2013 - Current
69# Linerboard	69A2	January 2013 - September 2013
	69C1	November 2013 - Current
26# Corrugating Medium	CM73	December 2012 - Current

<h1 style="text-align:center; color:green;">EXPLANATION OF TABLES</h1>

Each analysis is divided into three time spans. On the left side of the table are the individual laboratory results for each week of the month; in the center are each lab's statistical data for the month; and on the right are each lab's cumulative data for up to 16 weeks. At the bottom of the table are the consensus statistics for all the participants for each of the three time spans.

<h2 style="text-align:center; color:green;">Definitions of Terms Used</h2>

Weekly Results

Laboratory Data

WebCode	- A six character laboratory identifier used to maintain information on a confidential basis. The WebCode is unique for each cycle and will change for each report. Your WebCode can be found in your Individual Report (Current Month Performance Report) and your datasheet.
Weekly Means	- The average of the test results obtained by the participant for each week that data were reported.

Consensus Data

Wk Mean	- For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.
Avg SDr	- For each week, the average of the within-laboratory standard deviations (SDr's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SDr is an indication of the variation of measurements within an average laboratory.
SD btwn Labs	- For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.
Labs Incld	- The number of laboratory Means included in the Wk Mean for that week.
Labs Excld	- The number of laboratory Means reported but excluded from the Wk Mean for that week because of outlying results ('X' following Mean).
Labs not rcvd	- The number of laboratories failing to report for that week.

Monthly Results

Laboratory Data

Mean	- For each laboratory, the average of all the weekly Means reported for this month.
CPV	- **Comparative Performance Value**, an indication of how well a laboratory's Mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean). The closer a laboratory's CPV is to zero, the more consistent its results are with the other participants' data.
SDr	- For each laboratory, the average of the weekly within-lab standard deviations (SDr's) for all reported Weekly Means this month.
SD Wk	- The standard deviation among the laboratory's weekly Means, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

Consensus Data

Month Mean	- The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for this month.
Avg SDr	- For the current month, the average of the within-laboratory standard deviations (SDr's) for all the participants, excluding those laboratories flagged with an 'X'.
SD btwn Labs	- For the current month, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
SD btwn Group	- For the current month, the standard deviation of the laboratory Means within the group about the Month Mean, excluding those laboratories flagged with an 'X'.
SD btwn Wks	- For the current month, the average of the laboratory between week standard deviations (SD Wks') for all

Cumulative Results

Laboratory Data

Mean - For each lab, the average of all the monthly Means reported for the weeks shown.

CPV - **Comparative Performance Value**, an indication of how well a laboratory's cumulative mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean).

SDr - For each laboratory, the average of the weekly within-lab standard deviations (SDr's) for the weeks shown.

SD Wk - The standard deviation among the laboratory's weekly Means for the weeks shown, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

Wks - The number of weeks included in the cumulative period.

Inst - The two letter instrument code. Codes are summarized at the bottom of the last analysis page.

Consensus Data

Grand Mean - The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for the number of weeks included in the cumulative period.

Avg SDr - For the cumulative period, the average of the within-laboratory standard deviations (SDr's) for all the participants, excluding those laboratories flagged with an 'X'.

SD btwn Labs - For the cumulative period, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.

SD btwn Wks - For the cumulative period, the average of the laboratory between week standard deviations for all the participants.

Any laboratory that receives a 'flag' following a mean or standard deviation should refer to the chart below for an explanation of the data flag symbol:

Flag   Explanation

Data Flags " X " and " * " indicate a laboratory's performance on an average value differed from the consensus.
Data Flags " H " and " L " indicate a laboratory's performance on a standard deviation differed from the consensus.

Flags assigned to Weekly Means, Monthly Mean and Cumulative Mean:
  X   Excluded from the weekly means, monthly means and/or the cumulative mean. Immediate review of data and/or testing procedure is recommended.
  *   Included in the weekly means, monthly means and/or the cumulative mean; however, lab should review testing procedure and monitor future results.

Flags assigned to Weekly Means:
  H   Indicates high within-laboratory standard deviation. The laboratory SDr for each week is not shown, but laboratory average SDr and consensus average SDr values are shown.
  L   Indicates low within-laboratory standard deviation. The laboratory SDr for each week is not shown, but laboratory monthly average SDr and consensus average SDr values are shown.

Flags assigned to Monthly SD Wks and Cumulative SD Wks:
  H   Indicates high variabilty between weekly means (high week-to-week variation).
  L   Indicates low variabilty between weekly means (low week-to-week variation).

Containerboard Interlaboratory Testing Program
Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BOX9
TAPPI Official Test Method T804
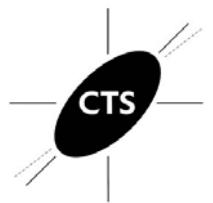
WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SDr		Mean	CPV	SDr	Months	Inst
4KFGZD	846.2	-0.06	38.9		813.2	-0.66	35.6	4	EX
AAWJMA	916.0	1.14	52.7		896.6	0.74	38.7	4	ER
AB64K6	840.0	-0.17	62.4		837.9	-0.25	55.5	4	ER
ACYJLL	957.0	1.84	39.8		958.8	1.78	51.7	4	LH
B2F6HJ	926.5	1.32	19.3		871.6	0.32	64.0	4	ER
BMYA3M	883.5	0.58	16.7		801.0	-0.86	46.9	4	LS
BVDTB8	944.4	1.62	28.3		940.0	1.46	32.0	4	TB
EBE4JF	827.4	-0.38	91.4		829.1	-0.39	64.3	4	ER
EJ7K9J	873.2	0.40	67.6		942.9	1.51	52.2	3	TS
F2Z84U	794.5	-0.95	37.0		791.0	-1.03	33.1	4	LL
FL6DH9	752.6	-1.67	35.8		759.3	-1.56	51.2	3	LG
HBHV38	811.7	-0.65	36.6		773.8	-1.32	48.9	4	LM
L3V7VU	742.2	-1.84	25.2		794.6	-0.97	69.8	4	LL
LGUK3X	908.1	1.00	34.9		903.5	0.85	29.2	3	LG
MAQXQN	861.2	0.20	37.9		891.8	0.66	36.2	3	LS
MMETTM	857.7	0.14	47.9		861.1	0.14	42.5	4	LM
NJWVY6	842.4	-0.13	61.6		777.3	-1.26	58.8	4	ES
PYKF3V	803.0	-0.80	34.0		829.5	-0.39	54.7	4	LG
ZRKHMB	830.7	-0.33	36.4		896.4	0.73	31.0	4	TE
ZUALFH	828.1	-0.37	60.0		901.0	0.81	70.0	4	LH
ZWF773	797.7	-0.89	24.8		835.1	-0.29	48.5	4	ER

Consensus (All Labs) Results

Month Mean	849.72		Grand Mean	852.63
Avg SDr	45.88		Avg SDr	49.91
SD btwn Labs	58.28		SD btwn Labs	59.75
Labs Incld	21		Labs Incld	21

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	875.32	87.33	25.60	4
Clip sealing	828.31	41.53	21.41	13
Tape sealing	893.70	51.75	43.98	4

Containerboard Interlaboratory Testing Program
Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BOX9
TAPPI Official Test Method T804

CTS

Instrument Code List as Reported by the Labs

(ER) - Emerson 6200 Series

(ES) - Emerson 8510

(EX) - Emerson Apparatus (Model not specified)

(LG) - TLS / L.A.B. Validator Series

(LH) - L.A.B. Compression Tester Model #10610

(LL) - Lansmont 76-5K

(LM) - Lansmont 122-15k

(LS) - Lansmont Squeezer

(TB) - TMI Monitor/Compression Tester, Model 17-70

(TE) - Testometric M500 - 25 KN

(TS) - Tinus Olsen Model CTM

Report #547

Containerboard Interlaboratory Testing Program
Analysis 202
Edgewise Compressive Strength, by T811, Corrugated board - ECT8
TAPPI T811

WebCode	Monthly Results Mean	CPV	SDr		Cumulative Results Mean	CPV	SDr	Months	Inst
6GRVVA	59.2	0.76	1.3		57.1	0.26	1.7	3	TB
AB64K6	57.9	-0.12	1.8		57.2	0.33	2.0	4	EN
ACYJLL	56.8	-0.79	2.0		53.5	-1.24	2.2	4	TC
BMYA3M	58.0	0.00	2.5		57.0	0.23	1.8	4	LC
LE794R	58.9	0.52	1.3		57.4	0.41	1.3	2	WK
MAQXQN	55.1	-1.87	2.2		52.7	-1.58	2.2	2	EM
PRKFTN	58.1	0.06	2.8		56.5	0.00	3.8	4	XX
PYKF3V	60.3	1.43	4.0		60.2	1.60	3.2	4	LC
ZWF773	66.8	5.57 **X**	1.5		66.8	4.39 **X**	1.7	3	TD

Consensus (All Labs) Results

Month Mean	58.04		Grand Mean	56.46
Avg SDr	2.39		Avg SDr	2.40
SD btwn Labs	1.58		SD btwn Labs	2.36
Labs Incld	8		Labs Incld	8

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200 Series	(EN) - Emerson 2200
(LC) - L&W Crush Tester 48	(TB) - TMI Monitor/Compression Tester, Model 17-70
(TC) - TMI Monitor/Compression Tester, Model 17-37	(TD) - TMI Digital Crush Tester, Model 17-09
(WK) - Zwick Z005 Crush Tester	(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated board - ECT8
TAPPI T839

WebCode	Monthly Results Mean	CPV	SDr	Cumulative Results Mean	CPV	SDr	Months	Inst
28XFFV	61.7	0.58	1.7	61.9	0.82	1.5	4	LC
4KFGZD	57.0	-0.68	1.8	60.0	0.12	1.9	4	TL
6GRVVA	58.7	-0.22	0.5	58.3	-0.52	1.6	3	TG
737YTH	60.0	0.13	2.3	60.3	0.21	2.7	3	LD
97GULK	61.5	0.53	3.2	61.5	0.67	3.2	1	TK
AAWJMA	52.3	-1.92	2.8	53.6	-2.29 *	1.8	4	EM
AB64K6	60.6	0.29	2.0	59.6	-0.04	2.3	4	EN
ACYJLL	60.6	0.28	0.6	61.4	0.62	0.9	4	TC
AX43WM	53.9	-1.49	4.5	56.0	-1.38	3.5	4	LD
B2F6HJ	59.0	-0.15	2.8	60.5	0.28	2.6	4	EN
BMYA3M	59.3	-0.05	1.9	58.8	-0.35	2.3	4	LC
BVDTB8	63.6	1.09	1.5	61.0	0.47	1.0	4	LC
CVLRWL	62.3	0.75	5.9	57.4	-0.87	3.6	4	TD
DZU66Q	63.4	1.03	0.9	63.1	1.24	1.9	4	LD
EBE4JF	59.4	-0.04	2.0	59.2	-0.21	2.2	4	LD
EJ7K9J	55.9	-0.96	1.1	62.1	0.89	1.7	4	CT
F2Z84U	61.1	0.41	1.2	61.1	0.51	1.5	4	BU
HBHV38	56.4	-0.84	1.2	56.9	-1.06	1.4	4	EM
HFCW4L	58.7	-0.22	3.3	61.1	0.50	2.5	4	TB
L3V7VU	59.6	0.03	3.0	61.5	0.67	3.0	4	LC
LGUK3X	56.4	-0.84	3.0	56.6	-1.18	3.7	3	EM
M2G2VB	58.3	-0.32	0.9	58.5	-0.44	1.5	4	TG
M9V889	53.6	-1.58	1.3	55.0	-1.74	1.4	4	LC
MAQXQN	55.3	-1.11	1.6	56.4	-1.24	2.1	2	EM
MMETTM	59.4	-0.04	2.0	60.6	0.34	1.9	4	TC
NJWVY6	58.3	-0.34	1.4	58.2	-0.55	2.7	4	LD
NTE2MF	66.7	1.91	1.4	64.5	1.78	2.0	4	TX
PYKF3V	65.1	1.48	2.7	64.2	1.65	2.8	4	LC
RXHE63	51.8	-2.05 *	2.7	55.1	-1.73	3.1	4	LC
TW8UWT	61.7	0.58	1.8	60.7	0.35	2.1	4	LC
UAKG9H	65.7	1.63	1.2	64.3	1.69	1.3	4	LC
V9NQQM	62.5	0.78	3.0	60.1	0.14	3.6	4	LC
VMUJKK	59.7	0.05	1.3	59.9	0.05	1.7	4	TM
YMYDPU	60.6	0.29	2.1	58.8	-0.34	2.9	4	LD
ZUALFH	55.9	-0.96	3.5	62.2	0.91	4.4	4	EM
ZWF773	66.8	1.95	1.5	68.0	3.09 X	1.6	2	TD

Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated board - ECT8
TAPPI T839

Consensus (All Labs) Results

Month Mean	59.52		Grand Mean	59.72
Avg SDr	2.37		Avg SDr	2.45
SD btwn Labs	3.75		SD btwn Labs	2.69
Labs Incld	36		Labs Incld	35

Instrument Code List as Reported by the Labs

|	
(BU) - Buchel Digital Crush Tester	(CT) - Con-Ten
(EM) - Emerson 1200 Series	(EN) - Emerson 2200
(LC) - L&W Crush Tester 48	(LD) - L&W Crush Tester 248
(TB) - TMI Monitor/Compression Tester, Model 17-70	(TC) - TMI Monitor/Compression Tester, Model 17-37
(TD) - TMI Digital Crush Tester, Model 17-09	(TG) - TMI Digital Crush Tester, 17-76
(TK) - TLS Compression Tester, Model 5184	(TL) - Tech-Lab Systems Compression
(TM) - TMI/Hinde & Dausch	(TX) - TMI (model not specified)

Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42D1
TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2ECWYB	124.6 X	121.9 *	126.7 X	123.5 *	124.2	3.53 X	7.8	2.0	124.2	3.53 X	7.8	2.0	4	AH
3J4QMG	109.3	108.8	105.0	No Data	107.7	-0.43	9.5	2.3	107.7	-0.43	9.5	2.3	3	LC
494HGJ	114.7	109.8	117.5	116.7	114.7	1.25	12.9	3.4	114.7	1.25	12.9	3.4	4	LA
6BNQ4Q	103.0	102.1	102.9 L	102.4	102.6	-1.66	7.7	0.4 L	102.6	-1.66	7.7	0.4 L	4	LJ
6EM6RF	110.9	108.6	No Data	No Data	109.8	0.06	12.4	1.6	109.8	0.06	12.4	1.6	2	AH
737YTH	102.1	109.7	100.1	103.9	103.9	-1.34	6.5	4.2	103.9	-1.34	6.5	4.2	4	LA
7NKMFN	114.5	111.9	114.4	118.5	114.8	1.28	12.9	2.7	114.8	1.28	12.9	2.7	4	LJ
99KP8A	103.7	113.9	112.2	112.8	110.7	0.28	9.6	4.7	110.7	0.28	9.6	4.7	4	LZ
9EEFYE	111.0	109.2	105.2	104.2	107.4	-0.51	9.8	3.3	107.4	-0.51	9.8	3.3	4	LB
A4RM2N	107.5	102.6	111.2	112.1	108.4	-0.28	10.8	4.3	108.4	-0.28	10.8	4.3	4	LC
A4RM4A	106.1	104.9	102.3 H	111.1	106.1	-0.82	12.5	3.7	106.1	-0.82	12.5	3.7	4	TB
ACYJLL	110.8	111.8	115.8	109.0	111.8	0.56	12.9	2.9	111.8	0.56	12.9	2.9	4	AA
AHB8LH	113.2	110.8	116.4	103.0	110.8	0.32	14.0	5.7	110.8	0.32	14.0	5.7 H	4	AX
AW7PBF	104.3	111.1	107.2	104.0	106.7	-0.68	9.3	3.3	106.7	-0.68	9.3	3.3	4	LA
AX43WM	114.6	119.9	114.2	111.3	115.0	1.32	9.9	3.6	115.0	1.32	9.9	3.6	4	AA
BMYA3M	107.8	105.4	103.7	102.6	104.9	-1.11	8.0	2.3	104.9	-1.11	8.0	2.3	4	AH
BNAEFB	112.5	112.2	111.4	119.5	113.9	1.06	9.5	3.7	113.9	1.06	9.5	3.7	4	LC
BQBH4Q	117.2	121.8 *	122.8 *	115.5	119.3	2.36 *	8.1	3.5	119.3	2.36 *	8.1	3.5	4	LA
D2BRP8	103.0	105.5	102.8	97.5 *	102.2	-1.75	8.6	3.4	102.2	-1.75	8.6	3.4	4	LC
EBE4JF	111.9	109.9	109.2	105.3	109.1	-0.10	10.1	2.8	109.1	-0.10	10.1	2.8	4	AH
EJ7K9J	110.5	106.6	104.3	110.7	108.0	-0.35	14.7	3.1	108.0	-0.35	14.7	3.1	4	XX
FL6DH9	No Data	No Data	110.1	No Data	110.1	0.14	11.8	0.0 L	110.1	0.14	11.8	0.0 L	1	AH
FTQ9JC	106.4	104.0	105.9 L	103.7	105.0	-1.08	9.3	1.4	105.0	-1.08	9.3	1.4	4	LA
G7DTM7	112.8	110.6	112.8	111.5	111.9	0.59	10.5	1.1	111.9	0.59	10.5	1.1	4	LA
GQFPXL	112.7	114.5	114.8	105.8	112.0	0.59	10.1	4.2	112.0	0.59	10.1	4.2	4	LC
HBHV38	100.9 L	103.9	101.4	105.2	102.9	-1.59	6.7	2.0	102.9	-1.59	6.7	2.0	4	AH
HFCW4L	109.6	110.9	103.9	115.8	110.1	0.14	12.1	4.9	110.1	0.14	12.1	4.9	4	LA
HNP789	105.1	106.0	102.8	109.2	105.8	-0.89	10.9	2.7	105.8	-0.89	10.9	2.7	4	TB
HXDYJ6	114.7	109.8	112.4	109.0	111.5	0.48	10.2	2.6	111.5	0.48	10.2	2.6	4	AH
JCRWDR	121.6 *	120.4	122.2 *L	123.6 *	122.0	2.99 X	6.6	1.3	122.0	2.99 X	6.6	1.3	4	RE
KM7YYW	107.8 L	107.3	110.0	106.4 L	107.9	-0.39	5.4	1.5	107.9	-0.39	5.4	1.5	4	LA
L4PNKV	102.6	104.7	101.2	108.9	104.4	-1.23	8.6	3.4	104.4	-1.23	8.6	3.4	4	AX
LBQ9X7	106.5	107.3	109.7	108.1	107.9	-0.38	8.4	1.4	107.9	-0.38	8.4	1.4	4	LZ
MAREXZ	113.2	117.3	115.9	111.3	114.4	1.18	8.2	2.7	114.4	1.18	8.2	2.7	4	LC
MV832W	120.1 *	117.9	113.1	117.2	117.1	1.83	11.6	2.9	117.1	1.83	11.6	2.9	4	TB
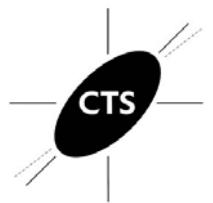
Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42D1

TAPPI Official Test Method T807

CTS

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
NJWVY6	108.3	112.4	105.0	106.8	108.1	-0.33	11.9	3.2	108.1	-0.33	11.9	3.2	4	LA
PYKF3V	114.3	115.2	113.0	113.7	114.1	1.10	12.9	0.9	114.1	1.10	12.9	0.9	4	LZ
RGE4YB	107.3	104.2	105.6	107.6	106.2	-0.80	8.3	1.6	106.2	-0.80	8.3	1.6	4	LJ
RTQ8MU	110.0	104.8	104.3	104.4	105.9	-0.87	13.4	2.8	105.9	-0.87	13.4	2.8	4	LA
T399HU	113.9	111.9	116.5	No Data	114.1	1.10	9.6	2.3	114.1	1.10	9.6	2.3	3	LA
TW8UWT	109.8	101.3	109.3	104.8	106.3	-0.77	12.5	4.0	106.3	-0.77	12.5	4.0	4	LA
UJRLAR	107.1	110.5	104.1	104.6	106.6	-0.70	11.8	2.9	106.6	-0.70	11.8	2.9	4	LC
V9NQQM	115.9	106.2	110.2	108.2	110.1	0.15	12.3	4.2	110.1	0.15	12.3	4.2	4	LA
VK69TR	112.8	108.5	110.8	112.2	111.1	0.38	8.0	1.9	111.1	0.38	8.0	1.9	4	TB
W66VMU	117.8	118.7 H	120.5	120.7	119.5	2.39 *	12.2	1.4	119.5	2.39 *	12.2	1.4	4	LA
WNJ8FK	108.0	No Data	No Data	No Data	108.0	-0.36	11.8	0.0 L	108.0	-0.36	11.8	0.0 L	1	LC
WVHU8K	111.7	114.4	114.7	111.1	113.0	0.84	12.7	1.8	113.0	0.84	12.7	1.8	4	LC
WYEJNR	108.6	107.6	102.5	107.8	106.6	-0.69	12.6	2.8	106.6	-0.69	12.6	2.8	4	LC
YCWK9B	110.0 L	108.0	106.6	106.5	107.8	-0.41	7.1	1.6	107.8	-0.41	7.1	1.6	4	AH
YH3GRB	102.3	107.1	109.5	103.3	105.5	-0.95	8.6	3.3	105.5	-0.95	8.6	3.3	4	LC
YHPMCA	108.3	114.2	106.1	112.3	110.2	0.17	11.7	3.7	110.2	0.17	11.7	3.7	4	TP
YK988J	116.4	107.3	109.9	120.0	113.4	0.94	11.8	5.8	113.4	0.94	11.8	5.8 H	4	LA

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4							
Wk Mean	110.10	110.11	109.46	109.86	Month Mean	109.50		Grand Mean	109.50		
Avg SDr	10.77	9.85	10.70	10.77	Avg SDr	10.67		Avg SDr	10.67		
SD btwn Labs	4.82	5.18	5.74	6.02	SD btwn Labs	4.16		SD btwn Labs	4.16		
Labs Incld	50	50	49	47	SD btwn Wks	3.15		SD btwn Wks	3.15		
Labs Excld	1	0	1	0	Labs Incld	50		Labs Incld	50		
Labs not rcvd	1	2	2	5							

Instrument Code List as Reported by the Labs

(AA) - Perkins Model A	(AH) - Perkins Model AH
(AX) - Perkins Mullen Tester (model not specified)	(LA) - L & W Bursting Strength Tester
(LB) - L & W Burst-O-Matic	(LC) - L & W Autoline
(LJ) - L & W Bursting Strength Tester J-Type	(LZ) - L & W (model not specified)
(RE) - Regmed/Mullen Tester	(TB) - TMI Monitor/Burst 1000
(TP) - Technidyne PROFILE/Plus	(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 207
Bursting Strength (Mullen), 36 lb Linerboard - 36Z3
TAPPI Official Test Method T807

CTS
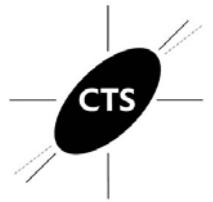
	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2ECWYB	84.2	90.5 *	91.7 X	86.9 *	88.3	2.54 *	4.5	3.4	88.1	2.53 *	4.5	2.4	12	AH
3J4QMG	77.0	81.4	79.7	No Data	79.3	0.01	5.5	2.2	78.5	-0.07	4.5	1.6	11	LC
494HGJ	78.4	80.0	79.2	80.6	79.6	0.07	4.6	1.0	79.0	0.07	4.8	1.3	12	LA
6BNQ4Q	79.8	79.4	80.5	79.7	79.8	0.15	3.8	0.5	80.9	0.60	3.1	0.9	12	LJ
6EM6RF	81.6	74.4	No Data	No Data	78.0	-0.37	6.0	5.1 H	76.3	-0.65	5.5	2.5	10	AH
737YTH	73.2	71.4 *	71.0 *L	72.5	72.0	-2.05 *	3.3	1.0	73.5	-1.42	3.7	1.4	12	LA
7NKMFN	79.7 L	79.1	79.6	80.0	79.6	0.08	4.0	0.4 L	79.3	0.16	4.4	1.5	12	LJ
99KP8A	77.7	78.5	79.4	76.1	77.9	-0.38	5.2	1.4	79.0	0.08	5.0	1.6	12	LZ
9EEFYE	77.6	77.3	76.9	76.0	77.0	-0.66	3.3	0.7	77.0	-0.47	3.1	0.6	12	LB
A4RM2N	73.7	79.6	78.1	78.2	77.4	-0.54	3.2	2.6	78.8	0.01	4.1	2.3	12	LC
A4RM4A	75.1	74.7	74.8	80.6	76.3	-0.84	4.7	2.9	77.2	-0.43	4.8	3.7	12	TB
ACYJLL	82.3	85.0	79.5 H	83.5	82.6	0.92	6.8	2.3	82.5	1.02	5.8	2.4	12	AA
AHB8LH	76.3	76.7	78.6	75.4	76.7	-0.72	5.1	1.3	76.0	-0.73	4.7	1.5	12	AX
AW7PBF	76.0	78.8	74.7	77.5	76.8	-0.72	4.6	1.8	77.0	-0.48	5.4	1.6	12	LA
AX43WM	86.4 *	80.4	83.4	86.5	84.2	1.37	4.7	2.9	80.0	0.36	4.5	4.7 H	12	AA
BMYA3M	74.8	77.1	71.4	74.9	74.6	-1.34	4.5	2.4	76.3	-0.65	5.6	4.0 H	12	AH
BNAEFB	78.8	75.9	76.9	78.5	77.5	-0.50	5.3	1.4	75.7	-0.81	5.1	2.3	12	LC
BQBH4Q	89.7 X	90.0 *	87.9 *	84.9	88.1	2.48 *	3.8	2.3	86.4	2.08 *	4.0	2.3	12	LA
D2BRP8	75.0	73.4	76.7	76.4	75.4	-1.11	5.4	1.5	75.6	-0.85	4.7	1.8	12	LC
EBE4JF	81.3	78.1	78.9	82.2	80.1	0.23	5.1	1.9	72.1	-1.80	5.9	6.1 H	12	AH
EJ7K9J	69.1 *	65.8 X	66.7 X	69.8 *	67.9	-3.22 X	6.8	1.9	70.6	-2.20 *	7.2	3.2	12	XX
FL6DH9	81.8	82.7	77.5	79.6	80.4	0.31	4.8	2.3	79.1	0.09	5.5	2.7	12	AH
FTQ9JC	79.8	77.1	79.2	77.9	78.5	-0.23	4.6	1.2	79.6	0.23	4.3	1.3	12	LA
G7DTM7	77.9	78.5	77.6	76.7	77.7	-0.45	5.8	0.8	79.0	0.07	6.0	1.5	12	LA
GQFPXL	81.9	84.8	85.1	81.0	83.2	1.10	4.2	2.0	84.5	1.58	4.3	1.9	12	LC
HBHV38	77.2	76.6 L	77.7	77.3	77.2	-0.58	2.9	0.5	76.9	-0.49	3.4	1.5	12	AH
HFCW4L	75.9	78.2	75.3	79.2	77.1	-0.61	5.4	1.9	74.5	-1.15	5.6	2.7	11	LA
HNP789	71.7	76.5	76.9	76.6	75.4	-1.09	4.3	2.5	76.1	-0.71	5.2	2.6	12	TB
HXDYJ6	80.6	83.7	77.6 H	78.2	80.0	0.20	6.3	2.8	78.1	-0.16	5.8	3.3	12	AH
JCRWDR	81.6	84.1	80.8	82.0	82.1	0.79	3.8	1.4	82.1	0.92	3.8	1.4	4	RE
KM7YYW	78.1	79.6	80.5	78.9	79.3	0.00	4.5	1.0	80.6	0.50	4.5	2.1	12	LA
L4PNKV	77.0	74.4	76.5	76.5	76.1	-0.90	4.9	1.2	74.7	-1.09	4.8	3.6	12	AX
LBQ9X7	80.4	81.7	79.9	79.3	80.3	0.28	5.6	1.0	78.8	0.02	4.7	1.9	12	LZ
MAREXZ	84.1	82.8	83.5	86.0	84.1	1.34	5.8	1.4	83.7	1.35	5.2	1.3	12	LC
MV832W	81.8	84.6 H	85.0	81.9	83.3	1.13	6.6	1.7	84.3	1.51	6.2	1.6	12	TB

Containerboard Interlaboratory Testing Program
Analysis 207
Bursting Strength (Mullen), 36 lb Linerboard - 36Z3
TAPPI Official Test Method T807

CTS

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
NJWVY6	78.0	79.2	80.3	82.7	80.1	0.21	5.7	2.0	79.6	0.23	5.6	1.5	12	LA
PYKF3V	80.4	81.0	81.1	80.0	80.6	0.37	4.8	0.5	82.1	0.90	5.6	1.9	12	LZ
RGE4YB	75.5	81.9	83.3	79.5	80.1	0.22	4.9	3.4	80.1	0.37	4.9	3.4	4	LJ
RTQ8MU	72.9	78.9	75.9	77.9	76.4	-0.82	4.7	2.7	74.5	-1.16	5.2	2.1	12	LA
T399HU	84.6	82.2	85.1	No Data	84.0	1.32	4.8	1.5	81.8	0.83	5.6	2.8	11	LA
TW8UWT	77.0	75.2	75.0	79.8	76.8	-0.72	5.5	2.2	75.0	-1.01	5.8	2.5	12	LA
UJRLAR	74.7	74.7	76.6	73.6	74.9	-1.24	5.5	1.2	75.0	-1.01	5.3	1.4	12	LC
V9NQQM	80.3	79.6	79.8	76.1	79.0	-0.09	5.0	1.9	78.5	-0.07	5.5	1.6	12	LA
VK69TR	90.6 X	87.6	89.1 *	88.2 *	88.9	2.69 *	3.2	1.3	88.2	2.56 *	4.5	1.6	12	TB
W66VMU	82.8	80.4	86.0	83.3	83.1	1.08	5.1	2.3	82.2	0.95	4.5	2.1	12	LA
WNJ8FK	78.1	No Data	No Data	No Data	78.1	-0.34	6.2	0.0 L	78.9	0.04	5.2	1.8	9	LC
WVHU8K	80.3	83.1	82.0	76.6	80.5	0.35	6.3	2.8	78.8	0.02	6.3	2.5	12	XX
WYEJNR	76.9	74.9	73.6	73.4	74.7	-1.29	4.9	1.6	76.4	-0.62	5.3	1.8	12	LC
YCWK9B	79.7	78.9	80.9	80.1	79.9	0.17	3.8	0.8	80.0	0.35	3.9	0.8	12	AH
YH3GRB	74.4	80.3	78.3	73.2	76.6	-0.77	5.6	3.3	76.2	-0.69	5.1	2.6	12	LC
YHPMCA	75.8	75.5 L	76.1	78.5	76.5	-0.80	3.6	1.4	75.7	-0.81	4.1	1.6	12	TP
YK988J	78.4	78.1	74.0 H	83.0 L	78.4	-0.27	6.7	3.7	79.1	0.10	6.1	2.1	12	LA

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4					
Wk Mean	78.35	79.57	79.12	79.11	Month Mean	79.30		Grand Mean	78.73
Avg SDr	5.49	4.82	5.00	4.50	Avg SDr	4.98		Avg SDr	5.03
SD btwn Labs	3.54	4.04	3.94	3.89	SD btwn Labs	3.56		SD btwn Labs	3.69
Labs Incld	50	50	48	48	SD btwn Wks	2.09		SD btwn Wks	2.39
Labs Excld	2	1	2	0	Labs Incld	51		Labs Incld	52
Labs not rcvd	0	1	2	4					

Instrument Code List as Reported by the Labs

(AA) - Perkins Model A   (AH) - Perkins Model AH

(AX) - Perkins Mullen Tester (model not specified)   (LA) - L & W Bursting Strength Tester

(LB) - L & W Burst-O-Matic   (LC) - L & W Autoline

(LJ) - L & W Bursting Strength Tester J-Type   (LZ) - L & W (model not specified)

(RE) - Regmed/Mullen Tester   (TB) - TMI Monitor/Burst 1000

(TP) - Technidyne PROFILE/Plus   (XX) - Instrument make/model not specified by lab

Report #547

Containerboard Interlaboratory Testing Program
Analysis 215
Ring Crush, 42 lb Linerboard - 42D1
TAPPI Official Test Method T822
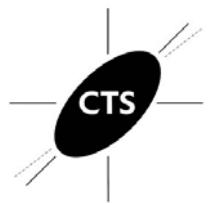
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2ECWYB	96.7 *	91.5	90.7	95.0	93.5	1.55	4.4	2.8	93.5	1.55	4.4	2.8	4	LD
3J4QMG	92.6	95.0 H	83.2	No Data	90.3	0.83	4.8	6.2	90.3	0.83	4.8	6.2 H	3	LC
494HGJ	90.6	91.7	92.3	89.5	91.0	1.00	4.8	1.2	91.0	1.00	4.8	1.2	4	LD
6BNQ4Q	93.5	97.5 *	93.6	91.4 L	94.0	1.66	2.7	2.5	94.0	1.66	2.7	2.5	4	LD
737YTH	86.1	86.0	88.4	87.2	86.9	0.09	3.9	1.1	86.9	0.09	3.9	1.1	4	LD
7NKMFN	82.8	85.9	85.5	81.1	83.8	-0.60	3.2	2.3	83.8	-0.60	3.2	2.3	4	LC
94UMD6	89.6	84.9	82.5 H	87.7	86.2	-0.08	4.9	3.1	86.2	-0.08	4.9	3.1	4	XX
9EEFYE	85.1	86.0	88.5	81.2	85.2	-0.29	4.2	3.0	85.2	-0.29	4.2	3.0	4	LC
A4RM4A	90.0	88.6	93.0	92.3	90.9	0.98	4.0	2.0	90.9	0.98	4.0	2.0	4	LC
AAWJMA	78.1	79.6	78.0 *	80.5	79.0	-1.66	3.6	1.2	79.0	-1.66	3.6	1.2	4	EX
AHB8LH	87.4	88.8	88.1	88.1	88.1	0.36	4.1	0.6 L	88.1	0.36	4.1	0.6 L	4	LC
AW7PBF	92.5	90.9	65.1 XH	93.0 H	85.4	-0.26	6.9	13.5 H	85.4	-0.26	6.9	13.5 H	4	LC
AX43WM	85.4	83.2	83.0	82.4	83.5	-0.67	3.7	1.3	83.5	-0.67	3.7	1.3	4	LD
B2F6HJ	82.6	81.6	81.8	81.2	81.8	-1.05	3.7	0.6 L	81.8	-1.05	3.7	0.6 L	4	EN
BMYA3M	86.7	86.1	86.6	90.6	87.5	0.22	4.5	2.1	87.5	0.22	4.5	2.1	4	LC
BNAEFB	86.4	83.9	83.8	84.5	84.7	-0.42	4.3	1.2	84.7	-0.42	4.3	1.2	4	LC
BQBH4Q	86.6	93.0	91.0	90.3	90.2	0.82	4.9	2.7	90.2	0.82	4.9	2.7	4	LD
CVLRWL	94.3 L	91.8 L	91.3 L	94.6 L	93.0	1.44	1.1	1.7	93.0	1.44	1.1	1.7	4	TD
D2BRP8	95.3	88.6	88.7	88.2	90.2	0.82	4.6	3.4	90.2	0.82	4.6	3.4	4	LC
DV242Q	85.4	85.3	84.4	84.8	85.0	-0.35	4.6	0.5 L	85.0	-0.35	4.6	0.5 L	4	TH
EBE4JF	79.4	81.5	79.6	82.5	80.8	-1.28	3.4	1.5	80.8	-1.28	3.4	1.5	4	LD
FTQ9JC	85.9	83.1	84.6 L	84.6	84.6	-0.43	4.0	1.1	84.6	-0.43	4.0	1.1	4	LD
G7DTM7	85.5	84.8	84.2	82.3	84.2	-0.52	3.8	1.4	84.2	-0.52	3.8	1.4	4	LC
GQFPXL	104.0 XH	94.0	90.5	90.4	94.7	1.82	5.5	6.4	94.7	1.82	5.5	6.4 H	4	TC
HBHV38	82.7 L	83.9	84.0 L	82.9 L	83.4	-0.70	1.8	0.7	83.4	-0.70	1.8	0.7	4	EM
HHGKLW	83.0	82.8	83.4	86.7	83.9	-0.58	3.0	1.8	83.9	-0.58	3.0	1.8	4	LD
HMEUZ6	79.4	80.3	82.4	78.9	80.2	-1.40	5.1	1.5	80.2	-1.40	5.1	1.5	4	MB
HNP789	69.7 X	83.0	62.5 X	86.5	75.4	-2.47 *	3.6	11.2 H	75.4	-2.47 *	3.6	11.2 H	4	LZ
HXDYJ6	97.6 *	112.0 X	88.1	90.3	97.0	2.33 *	4.8	10.8 H	97.0	2.33 *	4.8	10.8 H	4	LC
JCRWDR	89.4	91.5	90.4	90.0	90.3	0.85	4.4	0.9	90.3	0.85	4.4	0.9	4	LZ
KM7YYW	88.1	87.9 L	88.3	89.4	88.4	0.42	2.5	0.7	88.4	0.42	2.5	0.7	4	LZ
L4PNKV	91.1	91.7	93.1	95.5	92.9	1.41	4.8	2.0	92.9	1.41	4.8	2.0	4	LZ
LBQ9X7	88.7	81.7	83.9	81.6	84.0	-0.57	4.0	3.3	84.0	-0.57	4.0	3.3	4	LC
LGUK3X	78.1	76.9 *	81.6	77.2 *	78.4	-1.80	4.3	2.2	78.4	-1.80	4.3	2.2	4	EM
LHB8QY	84.0	83.9	83.3	84.9	84.0	-0.56	4.5	0.7	84.0	-0.56	4.5	0.7	4	LD

Containerboard Interlaboratory Testing Program
Analysis 215
Ring Crush, 42 lb Linerboard - 42D1
TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
M2G2VB	90.7	92.2	91.1	90.5	91.1	1.02	3.6	0.8	91.1	1.02	3.6	0.8	4	TH
MV832W	86.2	84.5	84.1	80.0	83.7	-0.63	3.1	2.6	83.7	-0.63	3.1	2.6	4	LC
MVCU6U	No Data	91.6	91.9	93.4	92.3	1.28	3.2	1.0	92.3	1.28	3.2	1.0	3	MB
NA9YX4	85.8	86.6	85.7	86.8	86.2	-0.07	4.2	0.6 L	86.2	-0.07	4.2	0.6 L	4	LD
PYKF3V	85.0	86.3	85.1	85.8	85.6	-0.21	3.1	0.6 L	85.6	-0.21	3.1	0.6 L	4	LC
QAJHWR	84.9	86.9	No Data	No Data	85.9	-0.14	3.5	1.4	85.9	-0.14	3.5	1.4	2	EX
RGE4YB	79.4	75.7 *	78.6	81.2	78.7	-1.74	4.0	2.3	78.7	-1.74	4.0	2.3	4	LD
RHQCDK	83.6	84.3	88.8	82.7	84.9	-0.37	4.1	2.7	84.9	-0.37	4.1	2.7	4	TH
RTQ8MU	84.0	85.8	86.3	84.9	85.2	-0.29	3.9	1.0	85.2	-0.29	3.9	1.0	4	LC
TW8UWT	86.0	86.9	81.7	81.0	83.9	-0.58	4.1	3.0	83.9	-0.58	4.1	3.0	4	LC
UJRLAR	84.4	84.9	84.9	84.7	84.7	-0.40	3.3	0.2 L	84.7	-0.40	3.3	0.2 L	4	LD
V9NQQM	87.0	84.9	84.8	84.5	85.3	-0.27	5.3	1.1	85.3	-0.27	5.3	1.1	4	LC
VK69TR	87.0	93.3	95.0 *	93.2	92.1	1.25	4.5	3.5	92.1	1.25	4.5	3.5	4	LX
W66VMU	85.5	82.8	82.4	78.9	82.4	-0.92	3.4	2.7	82.4	-0.92	3.4	2.7	4	LZ
WYEJNR	87.3 H	85.8 H	83.9	86.5 H	85.9	-0.15	8.5	1.4	85.9	-0.15	8.5	1.4	4	LA
YH3GRB	87.4	86.7	90.0	86.8	87.7	0.27	4.4	1.5	87.7	0.27	4.4	1.5	4	LD
YHPMCA	87.7	87.8	87.1	90.3	88.2	0.37	4.7	1.4	88.2	0.37	4.7	1.4	4	TH
ZRKHMB	84.4	87.6	88.0	88.3	87.0	0.12	4.2	1.8	87.0	0.12	4.2	1.8	4	LD
ZUALFH	88.3	88.1	90.1	89.7	89.0	0.56	4.2	1.0	89.0	0.56	4.2	1.0	4	EM

Consensus (All Labs) Results

Wk Mean	86.77	86.59	86.49	86.47	Month Mean	86.53		Grand Mean	86.53
Avg SDr	4.26	4.07	4.21	4.24	Avg SDr	4.24		Avg SDr	4.24
SD btwn Labs	4.42	4.48	4.10	4.65	SD btwn Labs	4.50		SD btwn Labs	4.50
Labs Incld	51	53	51	52	SD btwn Wks	3.55		SD btwn Wks	3.55
Labs Excld	2	1	2	0	Labs Incld	54		Labs Incld	54
Labs not rcvd	1	0	1	2					

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200

(EN) - Emerson 2200

(EX) - Emerson (model not specified)

(LA) - L&W Autoline

(LC) - L & W Crush Tester 48

(LD) - L&W Crush Tester 248

(LX) - L & W 506

(LZ) - L & W Crush Tester (model not specified)

(MB) - Messmer Buchel K440

(TC) - TMI Monitor/Compression Tester, Model 17-37

(TD) - TMI Digital Crush Tester, Model 17-09

(TH) - TMI Compression Tester, Model 17-76

(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 217
Ring Crush, 36 lb Linerboard - 36Z3
TAPPI Official Test Method T822

CTS

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
2ECWYB	86.3	81.5	81.0	82.2	82.8	0.55	3.7	2.4	84.9	1.46	3.4	2.1	12	LD
3J4QMG	87.7	85.0	83.2	No Data	85.3	1.27	3.0	2.3	83.7	1.08	3.3	2.0	11	LC
494HGJ	82.4	83.3	82.1	81.3 H	82.3	0.41	3.9	0.8	84.2	1.21	3.6	1.9	12	LD
6BNQ4Q	84.6	84.7 L	84.6	84.0	84.5	1.04	2.7	0.3 L	83.3	0.93	3.1	1.2	12	LD
737YTH	80.1	78.8	78.6	78.3	78.9	-0.53	2.8	0.8	79.3	-0.39	2.6	0.9	12	LD
7NKMFN	75.6	76.1	80.3	77.9	77.5	-0.94	2.5	2.1	76.7	-1.25	2.5	1.6	12	LC
94UMD6	84.8	78.5	81.0	83.1	81.9	0.30	3.7	2.7	79.2	-0.42	4.7	6.5 H	12	XX
9EEFYE	80.3	83.2	80.1	75.5	79.7	-0.30	3.2	3.2	79.1	-0.47	3.6	2.9	12	LC
A4RM4A	86.1	85.7	85.0	83.7	85.1	1.22	3.8	1.1	84.8	1.44	3.7	2.6	12	LC
AAWJMA	75.0	76.4	77.2	75.3	76.0	-1.37	3.1	1.0	74.9	-1.84	3.3	1.5	12	EX
AHB8LH	82.3 L	83.7	79.3 H	82.8	82.0	0.34	3.6	1.9	80.1	-0.13	5.3	6.1 H	12	LC
AW7PBF	82.8 H	90.6 *	85.2	82.2	85.2	1.24	5.4	3.8	80.7	0.07	5.0	7.9 H	12	LC
AX43WM	77.5 L	78.1	77.9	78.6	78.0	-0.79	2.1	0.5 L	78.3	-0.74	2.1	0.8	12	LD
B2F6HJ	77.0	79.8	77.7	78.5	78.2	-0.72	2.9	1.2	79.6	-0.29	3.3	1.8	12	EN
BMYA3M	81.7	82.9	82.0	82.5	82.3	0.41	3.5	0.5	81.8	0.44	3.0	0.9	12	LC
BNAEFB	81.2	81.3	79.2	82.9	81.2	0.10	3.0	1.5	79.5	-0.32	3.7	2.5	12	LC
BQBH4Q	84.3	84.0	85.2	84.0	84.4	1.01	2.1	0.6	84.2	1.22	2.7	1.3	12	LD
CVLRWL	76.7 L	75.8 L	79.1 L	80.1 L	77.9	-0.82	1.2	2.0	77.8	-0.89	3.0	1.7	8	TD
D2BRP8	84.9	79.8	82.9	80.0	81.9	0.31	3.4	2.5	81.1	0.21	3.6	2.0	12	LC
DV242Q	82.3	79.0	82.3	82.3	81.5	0.19	3.9	1.7	78.9	-0.51	4.2	2.8	12	TH
EBE4JF	76.7	75.7	76.3	76.7	76.4	-1.26	2.3	0.5 L	79.9	-0.21	2.4	2.8	12	LD
FTQ9JC	76.0	74.0	76.8 L	77.2	76.0	-1.35	2.6	1.4	76.9	-1.20	2.7	1.8	12	LD
G7DTM7	80.3	80.3	81.0	80.5	80.5	-0.08	3.1	0.3 L	78.3	-0.72	4.0	4.6	12	LC
GQFPXL	87.3	87.3	84.4	86.0	86.3	1.54	3.2	1.4	84.9	1.45	3.1	3.8	10	TC
HBHV38	74.8 L	76.3	75.3 L	76.5 L	75.7	-1.44	1.5	0.8	77.6	-0.97	2.0	2.5	12	EM
HHGKLW	76.0	77.0	77.1	77.9	77.0	-1.07	2.2	0.8	77.4	-1.01	2.4	1.3	12	LD
HMEUZ6	69.6 *	71.2 *	69.3 X	69.9 X	70.0	-3.05 X	3.9	0.8	78.3	-0.73	3.7	8.4 H	12	MB
HNP789	61.5 X	79.8	64.0 X	82.5	72.0	-2.50 *	3.2	10.7 H	74.8	-1.89	3.3	9.3 H	12	LZ
HXDYJ6	92.4 *H	98.4 XH	78.8 H	83.7	88.3	2.12 *	5.8	8.7 H	85.4	1.62	4.0	5.2	12	LC
JCRWDR	83.5	83.8	82.0	83.7	83.3	0.69	3.1	0.8	83.3	0.92	3.1	0.8	4	LZ
KM7YYW	80.4	80.5	80.9	80.9	80.7	-0.04	2.3	0.3 L	79.8	-0.24	2.0	1.1	12	LZ
L4PNKV	89.0 H	87.9	83.0	91.0 X	87.7	1.96	4.6	3.4	87.1	2.20 *	4.4	2.1	12	LZ
LBQ9X7	80.7	76.2	76.1	75.6	77.1	-1.04	4.0	2.4	77.6	-0.96	4.0	1.9	12	LC
LGUK3X	75.5	76.7	81.9	76.7	77.7	-0.87	3.2	2.9	79.6	-0.29	3.0	3.0	8	EM
LHB8QY	80.3	81.7	79.8	82.4	81.0	0.06	3.0	1.2	80.4	-0.03	3.1	1.8	12	LD

Report #547

Containerboard Interlaboratory Testing Program
Analysis 217
Ring Crush, 36 lb Linerboard - 36Z3
TAPPI Official Test Method T822

CTS

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
	Weekly Means				Monthly Results				Cumulative Results					
M2G2VB	82.8	82.3	81.4	82.4	82.2	0.40	2.7	0.6	78.8	-0.58	2.4	2.9	12	TH
MV832W	82.2	77.9	79.9	76.3	79.1	-0.48	4.2	2.6	77.1	-1.14	4.3	2.7	11	LC
MVCU6U	No Data	85.7	86.1	84.9	85.6	1.34	3.4	0.6	83.5	1.00	3.3	4.1	11	MB
NA9YX4	78.7	78.5	79.1 L	77.2	78.4	-0.69	2.5	0.8	78.0	-0.82	2.5	0.7	12	LD
PYKF3V	82.5	83.4 L	84.5	80.0	82.6	0.51	2.1	1.9	84.5	1.31	2.4	1.9	12	LC
QAJHWR	79.7	77.3	No Data	No Data	78.5	-0.64	2.6	1.7	80.5	0.01	2.9	1.7	6	EX
RGE4YB	86.0	79.2	83.6	75.4	81.0	0.07	3.4	4.7	81.0	0.18	3.4	4.7	4	LD
RHQCDK	76.6	75.9	73.3 *	75.6	75.4	-1.54	2.8	1.4	75.4	-1.70	2.8	1.4	4	TH
RTQ8MU	80.0	82.3	81.7	81.2	81.3	0.14	2.2	1.0	80.3	-0.05	2.3	1.0	12	LC
TW8UWT	78.1	81.6	70.6 XH	74.7	76.3	-1.29	4.4	4.7	77.3	-1.05	3.8	2.9	12	LC
UJRLAR	81.0	80.7	80.4	79.1	80.3	-0.14	2.4	0.9	81.3	0.26	2.6	1.9	12	LD
V9NQQM	75.4	79.6	74.6	80.0 H	77.4	-0.96	5.1	2.8	78.0	-0.82	5.4	4.0	12	LC
VK69TR	81.4	87.2	86.2	87.1 *	85.4	1.31	4.4	2.7	86.4	1.96	4.4	3.2	12	LX
W66VMU	83.3	80.5	81.9	78.3	81.0	0.05	3.8	2.1	81.8	0.44	3.2	1.6	12	LZ
WYEJNR	89.3 H	85.4 H	89.7 *H	83.0 H	86.8	1.70	7.1	3.2	85.2	1.57	6.1	3.3	12	LA
YH3GRB	81.5	78.3	80.9	78.1	79.7	-0.31	3.4	1.8	79.9	-0.19	3.8	2.1	12	LD
YHPMCA	81.1	81.4	80.7	82.1	81.3	0.14	2.3	0.6	80.6	0.02	2.8	2.0	12	TH
ZRKHMB	80.7	81.5	81.5	81.9	81.4	0.17	2.4	0.5 L	81.3	0.26	2.8	0.5 L	12	LD
ZUALFH	82.1	82.0	84.1	83.2	82.8	0.57	2.7	1.0	82.2	0.57	2.9	2.6	12	EM

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4					
Wk Mean	81.12	80.70	80.93	80.31	Month Mean	80.81	Grand Mean	80.49
Avg SDr	3.52	3.35	3.31	3.37	Avg SDr	3.40	Avg SDr	3.46
SD btwn Labs	4.33	3.87	3.28	3.17	SD btwn Labs	3.54	SD btwn Labs	3.02
Labs Incld	52	53	50	50	SD btwn Wks	2.72	SD btwn Wks	3.32
Labs Excld	1	1	3	2	Labs Incld	53	Labs Incld	54
Labs not rcvd	1	0	1	2				

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200

(EN) - Emerson 2200

(EX) - Emerson (model not specified)

(LA) - L&W Autoline

(LC) - L & W Crush Tester 48

(LD) - L&W Crush Tester 248

(LX) - L & W 506

(LZ) - L & W Crush Tester (model not specified)

(MB) - Messmer Buchel K440

(TC) - TMI Monitor/Compression Tester, Model 17-37

(TD) - TMI Digital Crush Tester, Model 17-09

(TH) - TMI Compression Tester, Model 17-76

(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42D1
TAPPI Provisional Test Method T826

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
3J4QMG	24.7 L	24.8 L	24.7 L	NO DATA	24.7	1.46	0.0	0.1 L	24.7	1.46	0.0	0.1 L	3	LA
3RYTRE	23.4 L	21.7 L	21.6 L	23.3 L	22.5	0.09	0.0	1.0	22.5	0.09	0.0	1.0	4	LU
3VX8CH	21.2	21.8	21.2	21.5	21.4	-0.57	1.3	0.3 L	21.4	-0.57	1.3	0.3 L	4	LW
494HGJ	23.0	22.3	22.7	22.7	22.7	0.21	2.0	0.3 L	22.7	0.21	2.0	0.3 L	4	XX
6EM6RF	24.7	24.8	NO DATA	NO DATA	24.8	1.49	2.2	0.1 L	24.8	1.49	2.2	0.1 L	2	LU
737YTH	21.6	21.0	21.6 L	21.5	21.4	-0.58	1.0	0.3 L	21.4	-0.58	1.0	0.3 L	4	BK
94UMD6	48.7 XL	24.2 L	23.9 L	25.3 XL	30.5	5.01 X	0.2	12.1 H	30.5	5.01 X	0.2	12.1 H	4	XX
99KP8A	24.3	23.3	23.8	22.6	23.5	0.70	1.8	0.7	23.5	0.70	1.8	0.7	4	LZ
9EEFYE	22.5	22.7	22.6	23.2	22.7	0.24	1.8	0.3 L	22.7	0.24	1.8	0.3 L	4	LU
A4RM2N	19.8 L	20.8 L	19.6 L	20.1 L	20.1	-1.41	0.3	0.5	20.1	-1.41	0.3	0.5	4	LA
AHB8LH	19.3	18.2 X	18.2 *	19.7	18.8	-2.17 *	1.3	0.8	18.8	-2.17 *	1.3	0.8	4	XX
AW7PBF	22.3 L	21.6	22.3 L	39.7 X	26.5	2.54 *	1.9	8.8 H	26.5	2.54 *	1.9	8.8 H	4	LW
AX43WM	20.0	19.7	20.8	21.3	20.4	-1.18	1.8	0.7	20.4	-1.18	1.8	0.7	4	LW
B2F6HJ	20.2	21.0	19.7	20.3	20.3	-1.27	1.6	0.5	20.3	-1.27	1.6	0.5	4	LY
BMYA3M	21.3	21.8	22.4	22.1	21.9	-0.29	1.9	0.4	21.9	-0.29	1.9	0.4	4	LU
BNAEFB	23.3 L	21.1 L	22.5 L	21.9 L	22.2	-0.11	0.4	0.9	22.2	-0.11	0.4	0.9	4	LA
D2BRP8	24.7 L	22.8 L	23.9 L	22.5 L	23.5	0.68	0.5	1.0	23.5	0.68	0.5	1.0	4	LA
EBE4JF	21.2	21.5	20.9	20.8	21.1	-0.76	1.7	0.3 L	21.1	-0.76	1.7	0.3 L	4	LU
FL6DH9	NO DATA	NO DATA	20.8	NO DATA	20.8	-0.98	1.2	0.0 L	20.8	-0.98	1.2	0.0 L	1	LW
G7DTM7	21.0	22.1	21.5	20.9	21.4	-0.60	1.8	0.6	21.4	-0.60	1.8	0.6	4	LA
GQFPXL	22.3 L	24.0	22.1 L	23.1 L	22.9	0.33	0.6	0.8	22.9	0.33	0.6	0.8	4	LA
HFCW4L	NO DATA	21.1	21.0	20.6	20.9	-0.90	2.1	0.3 L	20.9	-0.90	2.1	0.3 L	3	LU
HHGKLW	21.1	20.9	21.7	21.0	21.2	-0.73	1.7	0.4 L	21.2	-0.73	1.7	0.4 L	4	LY
HMEUZ6	25.7 *	24.1 L	25.2 *L	26.5 XL	25.4	1.87	0.7	1.0	25.4	1.87	0.7	1.0	4	BK
HNP789	20.1	21.8	21.7	21.2	21.2	-0.70	1.8	0.8	21.2	-0.70	1.8	0.8	4	LZ
HXDYJ6	22.3	22.6	22.0	22.8	22.4	0.04	1.0	0.3 L	22.4	0.04	1.0	0.3 L	4	LY
K29836	19.9 L	19.7	19.6 L	40.5 X	24.9	1.56	1.3	10.4 H	24.9	1.56	1.3	10.4 H	4	LW
LBQ9X7	22.6	23.0	23.0	23.8	23.1	0.44	2.0	0.5	23.1	0.44	2.0	0.5	4	LW
LHB8QY	20.4	19.9	20.5	20.5	20.3	-1.26	2.1	0.3 L	20.3	-1.26	2.1	0.3 L	4	LY
MAREXZ	24.9	24.5	23.7	26.2 X	24.8	1.52	2.0	1.1	24.8	1.52	2.0	1.1	4	LA
MJXXZP	20.8	21.5	22.4	21.1	21.5	-0.55	1.7	0.7	21.5	-0.55	1.7	0.7	4	LY
MJXZPU	22.2 L	21.2 L	22.5 L	23.1 L	22.3	-0.05	0.0	0.8	22.3	-0.05	0.0	0.8	4	TT
MV832W	22.4	23.5	24.6	23.5	23.5	0.70	2.0	0.9	23.5	0.70	2.0	0.9	4	LW
MVCU6U	NO DATA	21.7 L	22.9 L	21.7 L	22.1	-0.16	0.1	0.7	22.1	-0.16	0.1	0.7	3	LA
PYKF3V	21.2	22.7	21.8	21.5	21.8	-0.34	1.7	0.7	21.8	-0.34	1.7	0.7	4	LW

Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42D1
TAPPI Provisional Test Method T826

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
QAJHWR	26.9 XL	26.5 XL	NO DATA	NO DATA	26.7	2.68 *	0.0	0.2 L	26.7	2.68 *	0.0	0.2 L	2	LZ
RGE4YB	20.3	21.9	23.0	20.6	21.5	-0.56	2.0	1.2	21.5	-0.56	2.0	1.2	4	LU
RHQCDK	22.6	23.1	23.2	23.7	23.2	0.50	2.0	0.4	23.2	0.50	2.0	0.4	4	TT
RTQ8MU	21.5	21.8	21.7	21.2	21.5	-0.51	1.4	0.3 L	21.5	-0.51	1.4	0.3 L	4	LW
T399HU	24.2	23.3	24.5	NO DATA	24.0	1.01	2.2	0.6	24.0	1.01	2.2	0.6	3	LW
TW8UWT	19.7	24.0	20.3	21.3	21.3	-0.63	1.9	1.9	21.3	-0.63	1.9	1.9	4	LY
UJRLAR	21.8	22.8	22.1	20.6	21.8	-0.33	2.6	0.9	21.8	-0.33	2.6	0.9	4	LA
V9NQQM	21.9	23.2	22.6	22.8	22.6	0.17	1.3	0.5	22.6	0.17	1.3	0.5	4	LU
W66VMU	21.2	20.8	20.7	20.4	20.8	-0.97	1.7	0.4 L	20.8	-0.97	1.7	0.4 L	4	LW
WNJ8FK	23.5	NO DATA	NO DATA	NO DATA	23.5	0.72	2.1	0.0 L	23.5	0.72	2.1	0.0 L	1	LA
WVHU8K	21.3	23.1	23.5	22.6	22.6	0.17	1.6	1.0	22.6	0.17	1.6	1.0	4	XX
WYEJNR	22.4 L	20.7 L	19.9 L	21.9 L	21.2	-0.69	0.4	1.1	21.2	-0.69	0.4	1.1	4	LA
YCWK9B	22.8	23.8	22.6	23.0	23.1	0.43	1.4	0.5	23.1	0.43	1.4	0.5	4	TT
YH3GRB	21.8	22.5	21.3	22.8	22.1	-0.16	1.9	0.7	22.1	-0.16	1.9	0.7	4	LZ
YHPMCA	21.4	22.2	22.5	22.0	22.0	-0.20	1.4	0.4	22.0	-0.20	1.4	0.4	4	TT
YK988J	23.1	23.0	22.9	21.5	22.6	0.17	1.6	0.8	22.6	0.17	1.6	0.8	4	LU
ZRKHMB	20.8	20.4	20.7	20.7	20.7	-1.04	2.0	0.2 L	20.7	-1.04	2.0	0.2 L	4	LY

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4				
Wk Mean	22.02	22.24	22.06	21.78	Month Mean	22.35	Grand Mean	22.35
Avg SDr	1.61	1.65	1.56	1.57	Avg SDr	1.62	Avg SDr	1.62
SD btwn Labs	1.56	1.33	1.48	1.10	SD btwn Labs	1.63	SD btwn Labs	1.63
Labs Incld	47	48	49	41	SD btwn Wks	2.07	SD btwn Wks	2.07
Labs Excld	2	2	0	5	Labs Incld	51	Labs Incld	51
Labs not rcvd	3	2	3	6				

Instrument Code List as Reported by the Labs

(BK) - Buchel Strip Compression Tester BK-155

(LA) - L & W Autoline

(LU) - L & W 52 without moisture correction(was 53)

(LW) - L & W 53 with moisture correction (was 53M)

(LY) - L & W 152 without moisture correction

(LZ) - L & W (model not specified)

(TT) - TMI Short Span Compression, 17-34 (MB K455)

(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 225
STFI, 36 lb Linerboard - 36Z3
TAPPI Provisional Test Method T826

CTS

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
		Weekly Means				Monthly Results				Cumulative Results				
3J4QMG	21.4 L	22.8 L	22.7 L	No Data	22.3	0.86	0.0	0.8	21.9	0.61	0.0	0.6	11	LA
3RYTRE	20.9 L	22.0 L	20.7 L	21.4 L	21.2	-0.13	0.0	0.6	21.3	-0.07	0.0	0.5	8	LU
3VX8CH	20.9	21.0	21.0	20.8	20.9	-0.41	1.0	0.1 L	21.0	-0.35	1.0	0.2	8	LW
494HGJ	22.8	22.3	22.8	22.6	22.6	1.17	1.4	0.2	22.8	1.56	1.4	0.2	8	XX
6EM6RF	22.0	22.6	No Data	No Data	22.3	0.83	1.5	0.4	22.5	1.25	1.3	0.8	10	LU
737YTH	20.5	20.7	20.8	20.7	20.7	-0.65	0.8	0.1 L	20.7	-0.74	0.9	0.3	12	BK
94UMD6	36.0 XL	22.0 L	22.0 L	22.0 L	25.5	3.86 X	0.1	7.0 H	24.5	3.51 X	0.1	5.1 H	12	XX
99KP8A	23.1	23.4	22.6	23.0	23.0	1.52	1.5	0.3	22.4	1.21	1.5	0.9	12	LZ
9EEFYE	20.8	20.6	21.5	21.4	21.1	-0.29	1.1	0.4	21.6	0.23	1.2	0.5	12	LU
A4RM2N	19.2 L	20.2 L	19.6 L	19.7 L	19.7	-1.56	0.2	0.4	20.1	-1.41	0.2	0.5	12	LA
AHB8LH	19.4	18.3 *	18.4 X	19.3	18.8	-2.38 *	1.1	0.6	19.3	-2.23 *	1.2	0.7	10	XX
AW7PBF	21.1	21.8	21.4	30.4 X	23.6	2.12 *	1.4	4.5 H	21.5	0.17	1.2	2.9 H	12	LW
AX43WM	19.5	19.3	20.4	20.2	19.9	-1.43	1.2	0.5	19.7	-1.80	1.3	0.4	12	LW
B2F6HJ	19.7	20.0	19.4	19.5	19.7	-1.59	1.2	0.3	20.4	-1.03	1.2	0.7	12	LY
BMYA3M	21.7	21.5	21.2	21.1	21.4	-0.02	1.1	0.3	21.4	0.04	1.2	0.4	12	LU
BNAEFB	22.1 L	21.0 L	22.2 L	22.5 L	21.9	0.52	0.2	0.7	20.9	-0.54	0.3	1.1	12	LA
D2BRP8	21.2 L	20.0 L	21.4 L	21.7 L	21.1	-0.29	0.2	0.8	21.5	0.21	0.3	0.8	11	LA
EBE4JF	21.3	21.4	21.6	21.7	21.5	0.10	1.3	0.2 L	21.4	0.08	1.2	0.2	12	LU
FL6DH9	23.6 *	23.4	23.2	22.7	23.2	1.71	1.1	0.4	22.0	0.71	1.2	1.0	12	LW
G7DTM7	20.9	19.8	20.0	20.4	20.3	-1.03	1.0	0.5	20.0	-1.43	1.2	0.6	12	LA
GQFPXL	20.7 L	21.4 L	21.6 L	22.0 L	21.4	0.03	0.3	0.6	21.9	0.61	0.3	0.8	12	LA
HFCW4L	No Data	20.9	21.6	20.2	20.9	-0.44	1.2	0.7	20.5	-0.93	1.2	0.5	11	LU
HHGKLW	21.0	20.9	21.0	21.0	21.0	-0.39	1.3	0.1 L	21.0	-0.36	1.2	0.2	12	LY
HMEUZ6	23.5 *L	22.9 L	23.7 *L	23.5 *L	23.4	1.88	0.3	0.4	23.0	1.81	0.3	1.0	12	BK
HNP789	21.2	20.8	21.2	20.9	21.0	-0.34	1.2	0.2 L	21.2	-0.17	1.2	0.5	12	LZ
HXDYJ6	19.9 L	21.7	21.3 L	20.6	20.9	-0.49	0.5	0.8	21.3	-0.02	0.6	0.9	12	LY
K29836	20.7	19.8	19.6	31.5 X	22.9	1.39	1.2	5.8 H	21.3	-0.04	1.3	3.3 H	12	LW
LBQ9X7	22.4	23.1	22.5	23.0	22.7	1.27	1.5	0.4	23.1	1.88	1.4	1.3	12	LW
LHB8QY	19.7	19.2	19.5	19.3	19.4	-1.81	1.7	0.2 L	20.0	-1.49	1.4	0.6	8	LY
MAREXZ	22.2	22.6	23.4	23.3 *	22.9	1.38	1.2	0.6	23.2	2.10 *	1.3	0.7	12	LA
MJXXZP	21.0	21.0	21.2	21.1	21.0	-0.31	1.2	0.1 L	21.3	-0.08	1.1	0.3	12	LY
MJXZPU	20.9 L	21.3 L	20.9 L	20.7 L	20.9	-0.41	0.0	0.3	20.6	-0.83	0.0	0.7	8	TT
MV832W	22.4	21.9	22.7	23.0	22.5	1.03	1.6	0.5	22.3	1.04	1.4	0.6	12	LW
MVCU6U	No Data	21.1 L	21.4 L	20.6 L	21.0	-0.32	0.0	0.4	20.9	-0.49	0.0	0.3	11	LA
PYKF3V	21.3	21.6	21.4	20.5	21.2	-0.18	1.4	0.4	21.6	0.29	1.2	0.5	12	LW

Containerboard Interlaboratory Testing Program
Analysis 225
STFI, 36 lb Linerboard - 36Z3
TAPPI Provisional Test Method T826

CTS

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
QAJHWR	19.4 L	19.4 L	No Data	No Data	19.4	-1.83	0.0	0.0 L	19.9	-1.62	0.0	0.4	6	LZ
RGE4YB	19.8	21.7	22.6	21.7	21.5	0.07	1.4	1.2	21.5	0.12	1.4	1.2	4	LU
RHQCDK	21.9	21.2	21.4	21.8	21.6	0.19	1.6	0.3	21.6	0.27	1.6	0.3	4	TT
RTQ8MU	21.0	21.3	21.5	21.1	21.2	-0.14	1.2	0.2 L	21.1	-0.31	1.2	0.3	12	LW
T399HU	22.2	22.2	22.8	No Data	22.4	0.95	1.5	0.4	22.9	1.68	1.6	0.6	11	LW
TW8UWT	20.9	22.1	21.8	20.8	21.4	0.02	1.5	0.6	20.4	-1.02	1.4	0.9	12	LY
UJRLAR	21.6	21.2	21.9	20.6	21.3	-0.04	1.1	0.6	21.0	-0.35	1.1	0.8	12	LA
V9NQQM	20.7	21.5	20.6	20.8	20.9	-0.45	0.9	0.4	21.3	0.00	1.1	0.7	12	LU
W66VMU	20.9	20.7	20.1	20.0	20.4	-0.89	1.3	0.5	20.7	-0.69	1.2	0.5	12	LW
WNJ8FK	22.2	No Data	No Data	No Data	22.2	0.80	1.3	0.0 L	22.8	1.56	1.3	0.6	9	LA
WVHU8K	20.2	21.6	21.2	21.1	21.0	-0.33	1.1	0.6	21.4	0.07	1.0	0.5	12	XX
WYEJNR	22.0 L	21.6 L	21.2 L	22.0 L	21.7	0.28	0.3	0.4	21.5	0.20	0.3	0.5	12	LA
YCWK9B	21.5	21.1	21.4	21.3	21.3	-0.08	0.8	0.2 L	21.2	-0.17	0.8	0.2	12	TT
YH3GRB	22.5	23.5	23.0	21.6	22.6	1.17	1.7	0.8	22.5	1.23	1.4	0.6	12	LZ
YHPMCA	20.7	20.6	21.0	20.3	20.6	-0.68	0.9	0.3	20.7	-0.75	0.9	0.2	12	TT
YK988J	21.3	21.0	22.3	21.3	21.5	0.09	1.2	0.6	21.8	0.47	1.0	0.6	11	LU
ZRKHMB	21.2	20.5	20.6	21.2	20.9	-0.47	1.3	0.4	20.9	-0.48	1.3	0.3	12	LY

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4				
Wk Mean	21.20	21.28	21.47	21.24	Month Mean	21.38	Grand Mean	21.34
Avg SDr	1.11	1.21	1.07	1.06	Avg SDr	1.13	Avg SDr	1.11
SD btwn Labs	1.04	1.12	1.03	1.04	SD btwn Labs	1.07	SD btwn Labs	0.91
Labs Incld	49	51	48	45	SD btwn Wks	1.14	SD btwn Wks	0.87
Labs Excld	1	0	1	2	Labs Incld	51	Labs Incld	51
Labs not rcvd	2	1	3	5				

Instrument Code List as Reported by the Labs

(BK) - Buchel Strip Compression Tester BK-155

(LA) - L & W Autoline

(LU) - L & W 52 without moisture correction (was 53)

(LW) - L & W 53 with moisture correction (was 53M)

(LY) - L & W 152 (was 52M)

(LZ) - L & W (model not specified)

(TT) - TMI Short Span Compression, 17-34 (MB K455)

(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 228
Roughness - Stylus Method, 69 lb Linerboard - 69C
TAPPI Provisional Test Method T575

WebCode	Monthly Results Mean	CPV	SDr		Cumulative Results Mean	CPV	SDr	Months	Inst
3J4QMG	131.6	-0.54	14.6		126.4	-0.71	14.3	4	LA
94UMD6	158.7	1.39	25.3		151.2	0.69	24.1	4	EV
99KP8A	126.9	-0.87	13.1		126.8	-0.69	11.7	4	LA
A4RM2N	112.4	-1.90	6.1		121.4	-1.00	7.9	4	EV
AW7PBF	145.3	0.43	6.8		131.8	-0.41	7.3	4	EV
B2F6HJ	150.3	0.79	20.7		149.0	0.57	15.9	4	EV
BNAEFB	154.8	1.11	26.1		157.8	1.07	24.3	4	LA
D2BRP8	150.1	0.78	16.4		151.6	0.72	16.8	4	LA
EBE4JF	143.2	0.29	15.0		142.1	0.18	12.1	4	EV
HFCW4L	143.2	0.29	14.1		142.8	0.22	13.9	4	EV
HMEUZ6	147.1	0.56	19.4		136.0	-0.17	14.2	4	EV
HXDYJ6	84.3	-3.90 X	6.3		97.8	-2.33 *	8.3	4	EV
LBQ9X7	132.7	-0.46	11.1		135.3	-0.21	9.9	3	EV
MVCU6U	147.3	0.58	19.1		139.2	0.02	17.0	4	LA
RTQ8MU	157.0	1.27	11.0		147.7	0.49	12.8	4	EV
V9NQQM	134.3	-0.35	8.4		165.3	1.50	55.6	4	EV
W66VMU	108.1	-2.21 *	10.7		129.7	-0.52	12.5	4	EV
WNJ8FK	123.1	-1.14	15.8		118.3	-1.17	15.1	4	LA
YH3GRB	142.8	0.26	10.1		139.8	0.05	12.0	4	LA
YK988J	145.8	0.47	14.8		179.6	2.31 *	73.3	4	EV
YMXDRF	128.9	-0.73	12.4		128.4	-0.60	11.8	3	EV

Consensus (All Labs) Results

Month Mean	139.19		Grand Mean	138.96
Avg SDr	15.49		Avg SDr	24.36
SD btwn Labs	14.07		SD btwn Labs	17.63
Labs Incld	20		Labs Incld	21

Instrument Code List as Reported by the Labs

(EV) - Emveco Microgage Model 210-R   (LA) - L & W Autoline

Containerboard Interlaboratory Testing Program
Analysis 231
Internal Bond, 36 lb Linerboard - 36Z
TAPPI Provisional Test Method T569

WebCode	Monthly Results Mean	CPV	SDr		Cumulative Results Mean	CPV	SDr	Months	Inst
	Monthly Results				**Cumulative Results**				
99KP8A	139.8	-1.01	7.8		144.3	-1.01	7.1	4	TM
AHB8LH	133.2	-1.28	21.0		119.7	-2.21 *	12.1	4	SC
AW7PBF	178.0	0.56	16.0		175.5	0.51	16.7	4	SC
AX43WM	171.8	0.30	6.4		175.8	0.53	7.3	4	TM
BMYA3M	172.0	0.31	4.5		174.1	0.45	5.5	4	HY
BNAEFB	197.0	1.34	8.3		182.2	0.84	8.0	4	HY
BQBH4Q	161.8	-0.11	18.4		163.8	-0.06	14.4	4	HY
EBE4JF	148.6	-0.65	4.8		152.9	-0.59	6.8	4	TM
FTQ9JC	174.7	0.42	7.3		173.5	0.42	5.4	3	SC
G7DTM7	217.0	2.16 *	9.6		200.4	1.73	8.0	2	HY
GQFPXL	157.8	-0.27	5.7		155.4	-0.47	3.8	4	SC
LZBREU	162.7	-0.07	4.1		163.9	-0.05	5.2	4	TM
RTQ8MU	189.4	1.02	10.1		194.6	1.44	10.2	4	HY
UJRLAR	77.1	-3.59 X	1.1		64.4	-4.90 X	1.5	4	LZ
V9NQQM	145.0	-0.80	3.1		149.0	-0.78	6.7	4	TM
WYEJNR	160.2	-0.18	9.0		171.5	0.32	16.2	4	TM
YK988J	122.6	-1.72	5.7		143.0	-1.07	5.6	4	TM

Consensus (All Labs) Results

Month Mean	164.47		Grand Mean	164.95
Avg SDr	10.23		Avg SDr	9.54
SD btwn Labs	24.33		SD btwn Labs	20.52
Labs Incld	16		Labs Incld	16

Instrument Code List as Reported by the Labs

(HY) - Huygen Digitized Scott Internal Bond Tester

(LZ) - L & W (model not specified)

(SC) - Scott Internal Bond Tester (Manual)

(TM) - TMI Monitor/Internal Bond Tester

Containerboard Interlaboratory Testing Program
Analysis 234
COF Inclined Plane (Slide Angle), 36 lb Linerboard - 36Z
TAPPI Official Test Method T815
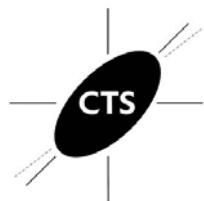
WebCode	Monthly Results Mean	CPV	SDr	Cumulative Results Mean	CPV	SDr	Months
99KP8A	24.2	-1.55	1.3	24.2	-1.50	2.1	4
A4RM4A	27.0	-0.04	3.3	25.0	-1.02	2.9	4
AW7PBF	25.4	-0.90	1.9	26.3	-0.33	1.5	4
AX43WM	27.9	0.46	2.3	26.1	-0.44	2.6	4
B2F6HJ	24.3	-1.50	1.2	24.7	-1.19	1.5	4
BMYA3M	24.4	-1.44	2.5	24.0	-1.58	1.6	4
BNAEFB	27.5	0.22	2.5	28.8	1.10	2.4	4
EBE4JF	28.4	0.72	2.1	27.4	0.30	1.9	4
FL6DH9	27.4	0.18	2.5	27.8	0.51	1.9	3
GQFPXL	29.4	1.26	1.8	29.4	1.42	1.2	4
GVTQWY	29.1	1.10	4.4	26.7	-0.11	3.8	4
HFCW4L	28.0	0.50	2.3	29.5	1.45	3.5	4
LBQ9X7	25.6	-0.80	1.1	24.9	-1.10	1.3	3
MV832W	30.0	1.59	2.7	27.7	0.45	3.1	4
RTQ8MU	25.0	-1.12	1.2	25.9	-0.52	1.5	4
UJRLAR	30.2	1.69	1.5	28.0	0.64	1.1	4
V9NQQM	26.7	-0.20	1.0	26.7	-0.11	1.1	4
WVHU8K	26.4	-0.36	2.4	26.1	-0.44	1.8	4
WYEJNR	26.8	-0.15	2.9	29.9	1.70	2.5	4
YK988J	27.7	0.34	1.0	28.2	0.77	2.4	4

Consensus (All Labs) Results

Month Mean	27.07		Grand Mean	26.84
Avg SDr	2.27		Avg SDr	2.23
SD btwn Labs	1.85		SD btwn Labs	1.80
Labs Incld	20		Labs Incld	20

Instrument Code List as Reported by the Labs

(ZZ) - Instruments No Longer Tracked

Containerboard Interlaboratory Testing Program
Analysis 237
Air Resistance, 36 lb Linerboard - 36Z
TAPPI Official Test Method T460

CTS

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SDr		Mean	CPV	SDr	Months	Inst
3J4QMG	52.8	0.63	3.1		52.9	0.75	3.3	4	TL
94UMD6	51.2	-0.31	4.3		51.3	-0.20	3.1	4	LW
99KP8A	40.6	-6.52 X	3.9		41.1	-6.62 X	5.1	4	XX
AW7PBF	51.9	0.10	3.4		52.3	0.37	3.6	4	HG
AX43WM	51.8	0.02	2.5		52.7	0.65	2.6	4	HG
BMYA3M	50.5	-0.70	3.8		51.1	-0.35	3.0	4	TP
BNAEFB	51.1	-0.34	1.8		52.0	0.23	1.8	4	LA
D2BRP8	49.8	-1.15	1.6		50.5	-0.72	2.1	4	LA
FTQ9JC	50.4	-0.76	2.1		51.0	-0.44	2.2	4	LP
GVTQWY	49.6	-1.23	2.3		48.5	-1.97	2.4	4	GA
HFCW4L	52.1	0.24	1.6		51.0	-0.44	1.2	4	LP
HMEUZ6	53.8	1.24	1.3		53.4	1.08	1.5	4	XX
KM7YYW	52.8	0.63	1.8		54.0	1.49	2.0	4	XX
MV832W	50.3	-0.85	1.5		51.1	-0.35	1.6	4	LP
RTQ8MU	52.3	0.32	2.0		51.9	0.13	2.0	4	LP
U3QJWT	48.8	-1.73	2.4		48.2	-2.17 *	1.8	4	LA
UJRLAR	53.1	0.82	1.2		53.4	1.08	1.7	4	LA
V9NQQM	55.0	1.92	3.0		53.2	0.96	2.2	4	LA
VQTZUT	54.9	1.86	2.9		53.4	1.07	2.2	4	XX
WVHU8K	41.9	-5.74 X	1.6		41.8	-6.22 X	2.2	4	XX
WYEJNR	52.1	0.19	1.8		51.7	0.03	2.0	4	LA
YK988J	45.1	-3.87 X	2.4		44.1	-4.73 X	2.8	4	XX
ZRKHMB	50.2	-0.89	1.0		49.8	-1.19	1.2	4	LP

Consensus (All Labs) Results

Month Mean	51.73		Grand Mean	51.66
Avg SDr	2.44		Avg SDr	2.29
SD btwn Labs	1.71		SD btwn Labs	1.59
Labs Incld	20		Labs Incld	20

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer

(HG) - Technidyne - Hagerty Model #1 and Profile System

(LA) - L & W Autoline

(LP) - L & W Air Permeance Tester SE 166

(LW) - L & W Gurley Densometer, Oil Flotation

(TL) - Teledyne Gurley Densometer #4110, Oil Flotation

(TP) - Technidyne Profile/ plus Roughness & Porosity

(XX) - Instrument make/model not specified by lab
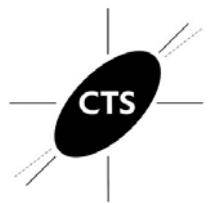
Containerboard Interlaboratory Testing Program
Analysis 240
Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM73
TAPPI Official Test Method T809

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
494HGJ	61.3	61.4	64.4	65.3	63.1	0.53	3.4	2.1	64.0	1.02	3.6	1.8	16	LD
6BNQ4Q	63.6	63.2	62.9	61.9	62.9	0.44	2.3	0.7	63.8	0.89	3.1	1.0	16	LD
7NKMFN	59.8	62.4	65.4	63.7	62.8	0.41	2.8	2.4	62.6	0.32	3.3	2.1	16	LC
94UMD6	61.2	45.0 XH	61.8 H	59.9	57.0	-2.23 *	7.8	8.0 H	57.1	-2.48 *	5.6	4.0 H	16	XX
9EEFYE	59.9	59.6 L	59.7	64.1	60.8	-0.50	2.4	2.2	61.5	-0.25	2.1	1.2	16	LD
AHB8LH	62.9	57.6	58.8	60.5	60.0	-0.88	3.3	2.3	60.5	-0.78	2.8	1.7	16	LC
AM7YUE	62.9	62.8	62.9	62.0	62.6	0.32	2.2	0.4	62.6	0.29	2.0	0.4	16	LD
BMYA3M	59.9	61.3	63.5	61.6	61.6	-0.15	3.8	1.5	61.2	-0.41	3.7	1.2	16	LC
BWL346	62.2	65.8	61.2	64.5	63.4	0.68	3.6	2.1	62.4	0.18	3.1	1.9	16	XX
CVLRWL	63.0 L	64.5 L	65.4 L	65.9 L	64.7	1.25	0.7	1.2	62.9	0.46	1.2	1.6	16	TD
DUNYD8	61.9	62.0 L	60.4	62.0	61.6	-0.16	2.4	0.8	61.8	-0.13	2.5	0.9	16	EM
DV242Q	58.9 L	61.4	62.1	64.7	61.8	-0.07	2.1	2.4	61.0	-0.53	2.5	1.7	16	TD
DZU66Q	61.8	61.6	61.4	61.0	61.5	-0.21	3.1	0.4 L	61.6	-0.19	3.0	0.8	16	LD
EBE4JF	58.6	60.2	58.3	60.4 L	59.4	-1.14	2.6	1.1	58.5	-1.76	2.7	1.7	16	LD
FL6DH9	60.0	61.9	60.3	61.3	60.9	-0.47	3.1	0.9	59.9	-1.06	2.1	0.9	12	LZ
G7DTM7	58.8	58.4	58.5	60.7	59.1	-1.27	2.2	1.1	59.4	-1.33	2.6	1.5	16	LC
GEPYCH	64.3	61.9	60.4	63.5	62.5	0.27	3.4	1.7	63.4	0.69	3.8	1.9	16	LC
HBHV38	64.3	65.1	64.3	65.8	64.8	1.32	2.4	0.7	65.0	1.48	2.8	0.8	16	EM
HFCW4L	61.1	60.3	60.7	58.9	60.3	-0.75	2.9	0.9	60.8	-0.62	3.5	1.1	16	LZ
HMEUZ6	70.3 X	71.5 X	66.5 H	66.3	68.6	3.02 X	4.2	2.6	64.4	1.20	4.4	3.3	16	MB
HNP789	58.4	61.9	57.9	59.4	59.4	-1.14	2.8	1.8	62.7	0.35	3.3	4.2 H	16	LZ
LHB8QY	61.3	67.4 *H	61.4	62.6 H	63.2	0.56	5.1	2.9	62.4	0.21	3.5	1.5	16	LD
MAREXZ	61.0	58.0	58.7	60.1	59.4	-1.12	3.6	1.4	58.9	-1.58	3.5	1.5	12	LD
MPMFFM	66.8 *	64.9	64.8	66.8	65.8	1.76	2.6	1.1	66.2	2.09 *	2.7	1.0	12	TM
MRALN3	14.9 XL	14.9 XL	9.1 XL	8.6 XL	11.9	-22.51 X	0.9	3.5	11.9	-25.25 X	0.9	3.5 H	4	TH
MV832W	62.5	62.5	67.1	66.6	64.7	1.25	3.4	2.5	63.9	0.95	3.2	1.8	16	LC
MVCU6U	58.6	No Data	58.9	61.0	59.5	-1.10	3.7	1.3	58.9	-1.57	3.8	1.9	15	MB
N38PQB	57.8	58.8	60.4	60.2	59.3	-1.18	2.5	1.2	59.7	-1.18	2.9	1.5	12	LZ
NXRCN3	61.8	61.5	62.3	62.9	62.1	0.09	2.4	0.6	62.4	0.18	2.3	0.5	16	LC
P4EWHP	61.6	61.1	60.4	60.5	60.9	-0.46	1.8	0.6	61.5	-0.26	1.8	0.7	16	LC
PYKF3V	68.0 *	67.3 *	66.1	66.7	67.0	2.30 *	2.6	0.8	65.6	1.82	2.4	1.3	16	LC
QAJHWR	58.6	57.5	No Data	No Data	58.0	-1.75	1.9	0.8	60.2	-0.90	2.4	2.0	6	LZ
RGE4YB	58.0 H	69.9 X	No Data	No Data	64.0	0.91	6.2	8.4 H	64.0	0.97	6.2	8.4 H	2	LC
RHQCDK	58.9	61.6	62.8	59.0 H	60.6	-0.61	3.5	1.9	61.3	-0.36	3.2	1.7	8	TH
RTQ8MU	59.7	59.3 H	59.8	62.0 H	60.2	-0.77	4.7	1.2	60.4	-0.82	4.2	1.4	16	LC
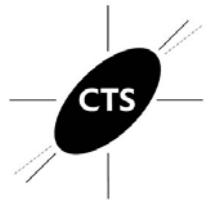
Containerboard Interlaboratory Testing Program
Analysis 240
Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM73
TAPPI Official Test Method T809

CTS

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
T399HU	60.4	61.4	63.0	NO DATA	61.6	-0.15	4.0	1.3	61.9	-0.08	3.9	1.5	14	LC
U3QJWT	67.2 *H	65.6	67.0	65.6	66.3	1.99	4.6	0.9	65.5	1.73	4.0	2.2	16	LC
UJRLAR	62.4	65.0	64.0	65.7	64.3	1.06	2.5	1.4	64.3	1.13	2.5	1.4	4	XX
V9NQQM	65.8	67.4 *	66.9	58.5	64.7	1.23	3.4	4.2	63.2	0.59	4.3	3.5 H	16	LC
VK69TR	62.7	64.2	62.6 H	62.8	63.1	0.53	4.0	0.7	62.0	0.01	3.0	1.0	16	LD
VQTZUT	61.3	61.2	62.3	62.4	61.8	-0.05	2.8	0.6	61.7	-0.15	2.7	0.9	16	LD
XDGCVU	62.0	62.2	61.4	62.6	62.1	0.06	2.3	0.5	62.5	0.22	2.4	0.6	16	LD
XGGHCL	63.1	63.5	61.4	64.0	63.0	0.49	4.0	1.1	64.5	1.24	4.7	2.4	16	LC
YCWK9B	59.8	61.8	60.5	60.8	60.7	-0.54	4.3	0.8	61.6	-0.19	5.1	1.9	16	TG
YH3GRB	58.4	61.4	60.4	57.1 *	59.3	-1.17	2.8	1.9	59.7	-1.18	3.0	2.0	15	LD
YHPMCA	59.8	62.2	63.5	62.7	62.1	0.06	2.3	1.6	61.7	-0.15	2.6	1.1	16	TH
Z8ZQYT	61.2	59.2	62.8	59.0	60.6	-0.62	2.3	1.8	60.9	-0.56	2.5	1.4	8	LC
ZJWU3M	63.1	64.3	65.5	63.6	64.1	0.99	2.5	1.1	63.0	0.48	2.9	1.1	16	LD
ZXFEMF	14.5 XL	15.6 X	17.6 XH	14.6 X	15.6	-20.85 X	3.6	1.4	15.6	-23.39X	3.6	1.4	4	TX

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4						
Wk Mean	61.45	62.15	62.24	62.41	Month Mean	61.92		Grand Mean	62.02	
Avg SDr	3.12	3.14	3.33	3.13	Avg SDr	3.37		Avg SDr	3.33	
SD btwn Labs	2.45	2.54	2.54	2.51	SD btwn Labs	2.22		SD btwn Labs	1.99	
Labs Incld	46	43	45	44	SD btwn Wks	2.31		SD btwn Wks	2.16	
Labs Excld	3	5	2	2	Labs Incld	46		Labs Incld	47	
Labs not rcvd	0	1	2	3						

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200 Series

(LC) - L & W Crush Tester 48

(LD) - L&W Crush Tester 248

(LZ) - L & W Crush Tester (model not specified)

(MB) - Messmer Buchel K440

(TD) - TMI Digital Crush Tester, Model 17-09

(TG) - TMI Compression Tester, Model 17-10

(TH) - TMI Compression Tester, Model 17-76

(TM) - TMI/Hinde & Dauch

(TX) - TMI Crush Tester (model not specified)

(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 250
Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM73
TAPPI Official Method T824

CTS

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
9EEFYE	71.0	71.1	72.0	72.5	71.6	-1.09	1.7	0.7	72.2	-1.13	1.5	0.7	16	LD
AM7YUE	72.5	72.0	72.1	71.9	72.1	-0.87	2.0	0.3 L	72.9	-0.74	1.9	0.6	16	LD
BMYA3M	77.2	78.3	77.2	76.9	77.4	1.47	2.0	0.6	77.7	1.99	2.5	1.3	16	LC
BWL346	73.4 H	74.6	63.6 XH	75.6	71.8	-1.00	4.4	5.5 H	73.4	-0.44	4.5	5.3 H	16	TU
CVLRWL	72.4 L	73.0 L	73.3 L	73.9 L	73.2	-0.40	0.6	0.6	72.4	-1.00	0.9	0.9	16	TD
GEPYCH	75.4	76.9 H	78.9	76.0 H	76.8	1.20	3.5	1.5	76.6	1.35	3.1	3.3	16	LC
HNP789	78.6	78.0	77.4	77.3	77.8	1.66	2.4	0.6	75.2	0.58	2.9	3.2	16	LZ
KM7YYW	72.7 L	72.5	72.6	72.0 L	72.5	-0.71	1.4	0.3 L	72.5	-0.92	1.4	0.7	16	XX
MV832W	73.1	73.0	74.3	73.4	73.5	-0.27	2.5	0.6	74.6	0.22	3.2	1.6	16	XX
PYKF3V	76.6	75.1	74.2	75.2	75.3	0.52	2.3	1.0	75.1	0.53	2.4	1.1	16	LC
UJRLAR	75.0	73.1	73.3 H	77.5	74.7	0.28	2.9	2.0	74.7	0.30	2.9	2.0	4	XX
Z8ZQYT	70.8 H	72.9	73.3	72.1	72.3	-0.80	3.7	1.1	72.8	-0.75	3.7	1.4	8	LZ

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4						
Wk Mean	74.05	74.21	74.42	74.52	Month Mean	74.07		Grand Mean	74.18	
Avg SDr	2.99	2.33	2.24	2.30	Avg SDr	2.64		Avg SDr	2.74	
SD btwn Labs	2.48	2.38	2.34	2.14	SD btwn Labs	2.26		SD btwn Labs	1.78	
Labs Incld	12	12	11	12	SD btwn Wks	1.85		SD btwn Wks	2.29	
Labs Excld	0	0	1	0	Labs Incld	12		Labs Incld	12	
Labs not rcvd	0	0	0	0						

Instrument Code List as Reported by the Labs

(LC) - L & W Crush Tester 48

(LD) - L&W Crush Tester 248

(LZ) - L & W Crush Tester (model not specified)

(TD) - TMI Digital Crush Tester, Model 17-09

(TU) - TMI Universal Crush Tester (TMI K440)

(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM73
TAPPI Official Test Method T822

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
6BNQ4Q	44.2 L	44.7	45.3	44.6	44.7	0.49	1.9	0.4	44.0	0.17	2.1	0.8	16	LD
7NKMFN	38.1	42.0	42.2	41.5	40.9	-0.81	2.1	1.9	41.3	-0.77	2.1	1.2	16	LC
94UMD6	46.5	43.4	43.1	48.0	45.2	0.67	3.2	2.4	45.1	0.54	2.8	2.6	16	XX
BMYA3M	43.3	43.7	44.7	44.4	44.0	0.26	2.4	0.6	44.4	0.31	3.0	0.9	16	LC
DUNYD8	42.5	41.8	42.2	42.8	42.4	-0.32	2.0	0.4	41.4	-0.76	2.2	0.9	16	LC
DZU66Q	48.1	48.3	48.1	48.6	48.3	1.71	2.2	0.3 L	48.7	1.84	2.2	0.9	16	LD
LE794R	44.1 L	44.0 L	44.6 L	44.3	44.2	0.33	1.1	0.3 L	44.4	0.32	1.2	0.6	12	WK
M2G2VB	43.2	42.6	43.4	43.3	43.1	-0.05	2.5	0.3	41.7	-0.63	2.0	0.9	16	TH
MPMFFM	38.4 L	36.1 X	38.1	38.5 L	37.8	-1.90	1.8	1.1	43.1	-0.17	2.4	4.6 H	12	LD
MV832W	40.2	43.4	44.9	41.6	42.5	-0.26	2.5	2.1	42.4	-0.41	2.4	2.0	16	LC
P4EWHP	45.1	45.7	35.6 *	45.9	43.1	-0.07	1.4	5.0 H	44.6	0.38	1.3	2.5	16	LC
QAJHWR	41.6	43.5	NO DATA	NO DATA	42.6	-0.25	3.7	1.4	42.5	-0.35	3.5	0.7	6	EM
RGE4YB	43.6	42.4	42.2	40.8	42.3	-0.35	3.1	1.1	42.3	-0.44	3.1	1.1	4	LD
U3QJWT	47.7	48.4	48.4	47.7	48.0	1.64	2.5	0.4	48.2	1.64	2.7	0.7	16	LD
UJRLAR	43.0	43.3	42.5 H	42.6	42.9	-0.15	3.9	0.4	42.9	-0.23	3.9	0.4	4	LD
VK69TR	46.0	46.8	45.9	46.9	46.4	1.07	3.6	0.5	47.7	1.46	3.7	1.0	16	LZ
VQTZUT	44.6	43.8	41.8	44.6	43.7	0.14	3.6	1.3	42.7	-0.29	3.3	1.0	16	LD
YH3GRB	42.9	41.8	40.7	40.0	41.4	-0.66	3.0	1.3	40.8	-0.97	2.5	1.4	15	LD
ZJWU3M	45.0	46.7 L	46.9	44.5	45.8	0.85	1.8	1.2	45.9	0.85	2.0	0.8	16	LD
ZXFEMF	36.3 *	34.1 XH	36.0 H	39.3 H	36.4	-2.36 *	4.4	2.2	36.4	-2.50 *	4.4	2.2	4	TX

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4				
Wk Mean	43.22	44.23	42.97	43.68	Month Mean	43.28	Grand Mean	43.52
Avg SDr	2.61	2.86	2.73	2.65	Avg SDr	2.77	Avg SDr	2.77
SD btwn Labs	3.10	2.09	3.57	2.95	SD btwn Labs	2.91	SD btwn Labs	2.83
Labs Incld	20	18	19	19	SD btwn Wks	1.65	SD btwn Wks	1.66
Labs Excld	0	2	0	0	Labs Incld	20	Labs Incld	20
Labs not rcvd	0	0	1	1				

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200 Series

(LC) - L & W Crush Tester 48

(LD) - L&W Crush Tester 248

(LZ) - L & W Crush Tester (model not specified)

(TH) - TMI Compression Tester, Model 17-76

(TX) - TMI Digital Crush Tester (model not specified)

(WK) - Zwick Z005 Crush Tester

(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 261
STFI, 26 lb Corrugating Medium - CM73
TAPPI Provisional Test Method T826

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
	Weekly Means				Monthly Results				Cumulative Results					
94UMD6	26.9 **XL**	15.0 **L**	15.1 **L**	16.0 **L**	18.2	4.19 **X**	0.1	5.8 **H**	18.2	4.88 **X**	0.1	5.2 **H**	16	XX
AM7YUE	14.3	14.1	14.5	13.7	14.2	-1.35	0.8	0.3	14.4	-1.15	0.8	0.4	16	LA
BMYA3M	14.9	15.1	15.4	15.2	15.1	-0.01	1.1	0.2	15.1	-0.01	1.0	0.3	16	LU
DUNYD8	15.8	15.2	15.0	14.4	15.1	-0.10	1.5	0.6	15.1	-0.01	1.2	0.4	16	LB
DZU66Q	15.0	14.3	15.2	15.4	15.0	-0.24	1.2	0.5	15.1	0.03	1.2	0.4	16	LA
FL6DH9	15.2	15.6	15.2	15.6	15.4	0.34	1.3	0.2	15.1	0.06	1.1	0.3	12	LW
HFCW4L	No Data	14.6	14.5	14.6	14.6	-0.79	1.2	0.1 **L**	14.4	-1.05	1.2	0.3	15	LU
HMEUZ6	17.1 ***L**	16.6 **L**	15.7 **L**	16.9 ***L**	16.6	1.93	0.2	0.6	16.5	2.11 *****	0.2	0.8 **H**	16	BK
MPMFFM	15.4	15.8	16.0	15.9	15.7	0.80	1.1	0.3	15.7	0.95	1.2	0.4	12	LA
MRALN3	15.6 **L**	15.5 **L**	25.7 **XL**	26.5 **XL**	20.8	7.68 **X**	0.1	6.1 **H**	20.8	8.89 **X**	0.1	6.1 **H**	4	LZ
MVCU6U	13.7 **L**	No Data	14.3 **L**	14.3 **L**	14.1	-1.42	0.0	0.3	14.1	-1.59	0.0	0.3	15	XX
N38PQB	15.7	14.6	15.4	14.9	15.1	-0.01	1.2	0.5	15.2	0.06	1.2	0.4	12	LW
NXRCN3	15.0	14.9	14.7	15.2	15.0	-0.27	1.1	0.2	14.8	-0.41	1.1	0.2	16	LB
P4EWHP	15.6	14.8	14.1	14.8	14.8	-0.43	0.8	0.6	15.0	-0.22	0.8	0.5	16	XX
RHQCDK	15.6	15.8	15.7	16.4	15.9	0.97	1.5	0.4	16.0	1.32	1.4	0.3	8	TT
T399HU	16.2	15.9	15.6	No Data	15.9	1.00	1.1	0.3	16.0	1.45	1.2	0.3	14	LW
TW8UWT	13.7	15.0	13.7	14.2	14.1	-1.38	0.7	0.6	14.4	-1.16	1.1	0.6	15	LB
U3QJWT	16.4 **L**	17.1 ***L**	16.9 ***L**	16.2 **L**	16.6	2.03 *****	0.0	0.4	21.5	10.01 **X**	3.6	5.6 **H**	16	LA
UJRLAR	14.4	16.2	15.8	15.5	15.5	0.43	1.0	0.8	15.5	0.55	1.0	0.8 **H**	4	LA
XDGCVU	14.8	14.7	15.1	15.1	14.9	-0.28	1.0	0.2	14.8	-0.42	1.1	0.2	16	LB
YH3GRB	16.0	15.8	15.9	15.2	15.7	0.77	1.4	0.4	15.9	1.16	1.2	0.3	15	LZ
YHPMCA	14.5	14.6	14.4	14.2	14.4	-1.02	0.7	0.2	14.7	-0.64	0.7	0.3	16	TT
ZXFEMF	15.0 **L**	14.2 **L**	14.0 **L**	14.6 **L**	14.5	-0.95	0.0	0.5	14.5	-1.03	0.0	0.5	4	XX

Consensus (All Labs) Results								
Wk Mean	15.24	15.24	15.10	15.14	Month Mean	15.15	Grand Mean	15.11
Avg SDr	1.02	1.01	0.96	0.97	Avg SDr	1.01	Avg SDr	1.03
SD btwn Labs	0.86	0.78	0.77	0.82	SD btwn Labs	0.74	SD btwn Labs	0.64
Labs Incld	21	22	22	21	SD btwn Wks	0.43	SD btwn Wks	0.43
Labs Excld	1	0	1	1	Labs Incld	21	Labs Incld	20
Labs not rcvd	1	1	0	1				

Containerboard Interlaboratory Testing Program
Analysis 261
STFI, 26 lb Corrugating Medium - CM73
TAPPI Provisional Test Method T826

Instrument Code List as Reported by the Labs

(BK) - Buchel Strip Compression Tester BK-155

(LA) - L & W Autoline

(LB) - L & W Model 152

(LU) - L & W 52 without moisture correction (was 53)

(LW) - L & W 53 with moisture correction (was 53M)

(LZ) - L & W (model not specified)

(TT) - TMI Short Span Compression, 17-34 (MB K455)

(XX) - Instrument make/model not specified by lab